



Nissan LEAF

2018

Highway Assist System



AD System Name	ProPilot	
Standard Active Safety Systems	AEB Car-to-Car	●
	AEB VRU	●
	LSS	●
	SAS	●
Available on	<a href="#">Nissan LEAF</a> <a href="#">Nissan Qashqai</a>	

Comments

ProPILOT on the Nissan LEAF gives the driver a moderate 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 "ProPILOT" does not clearly indicate that the system is a driver-assist system and could be misunderstood. The limited scenarios tested show that the system provides assistance only. The handbook mentions that the system is designed for main roads and motorways, 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, but slight 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 LEAF shows a high level of support in the slower-moving scenario. When approaching a stationary car, in the braking scenario and in the 'cut-in' and 'cut-out' scenarios, the system offers limited support, the driver being primarily required to handle the situation.

ProPILOT 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 or other vehicles to acts as a guide, ProPILOT will change to a passive mode and will resume assistance when clear lane markings are detected.

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

# Human Machine Interaction

System Name	The system name, ProPILOT, does not clearly indicate that this is an Assist System and could give a wrong impression about the system capabilities	
Official Manufacturer Information		
System Features	<b>SPEED CONTROL</b>	
	Automatic Speed Limit Adaptation	—
	Speed Adjustment for Road Features	—
	<b>STEERING SUPPORT</b>	
	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;"><b>Hands Off Warning timeline</b></p> <p>The chart shows the sequence of warnings for a hands-off event. Visual warning starts at approximately 10s and ends at 45s. Audible warning starts at 15s and ends at 45s. Haptic warning starts at 25s and ends at 30s. Controlled stop begins at 30s and ends at 45s.</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

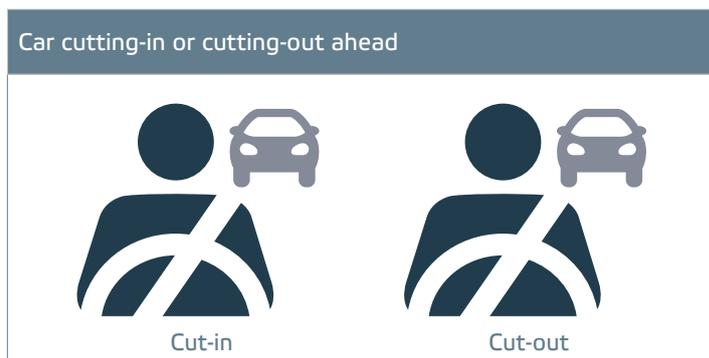
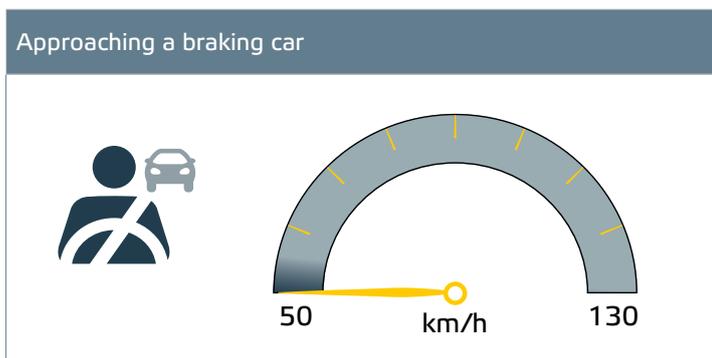
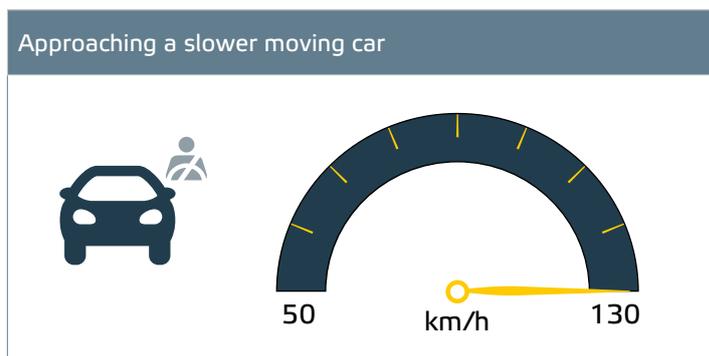
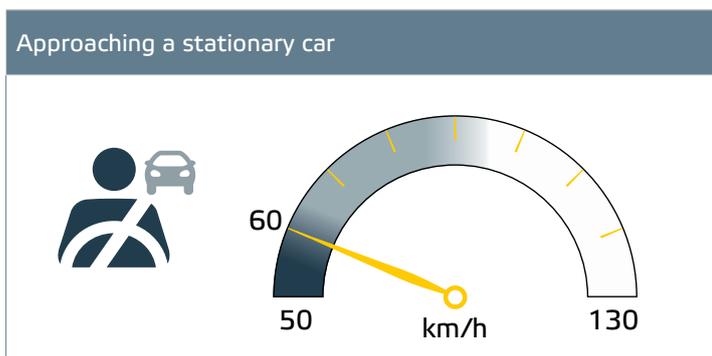
## Comments

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

Marketing information from Nissan clearly explains the design and intended use of the system

## Adaptive Cruise Control Tests



**VEHICLE PRIMARILY IN CONTROL**  
Level of support may result in over reliance



**GOOD COOPERATION BETWEEN DRIVER AND VEHICLE**  
Balanced



**DRIVER PRIMARILY IN CONTROL**  
Limited support provided by the system



**NO SYSTEM SUPPORT AT ALL**

ACC DESIGN LIMIT

ACC BRAKING

EMERGENCY INTERVENTION

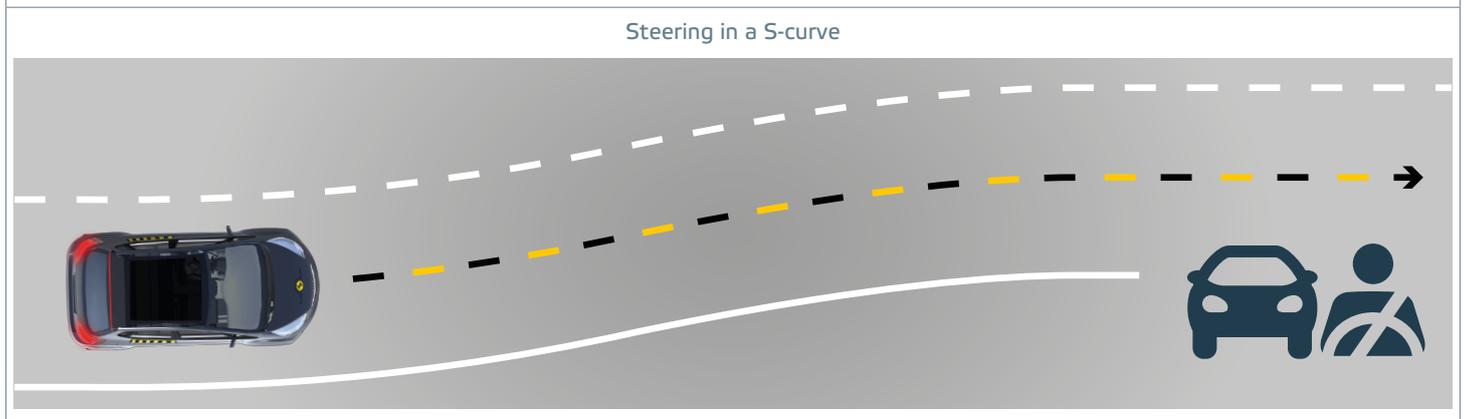
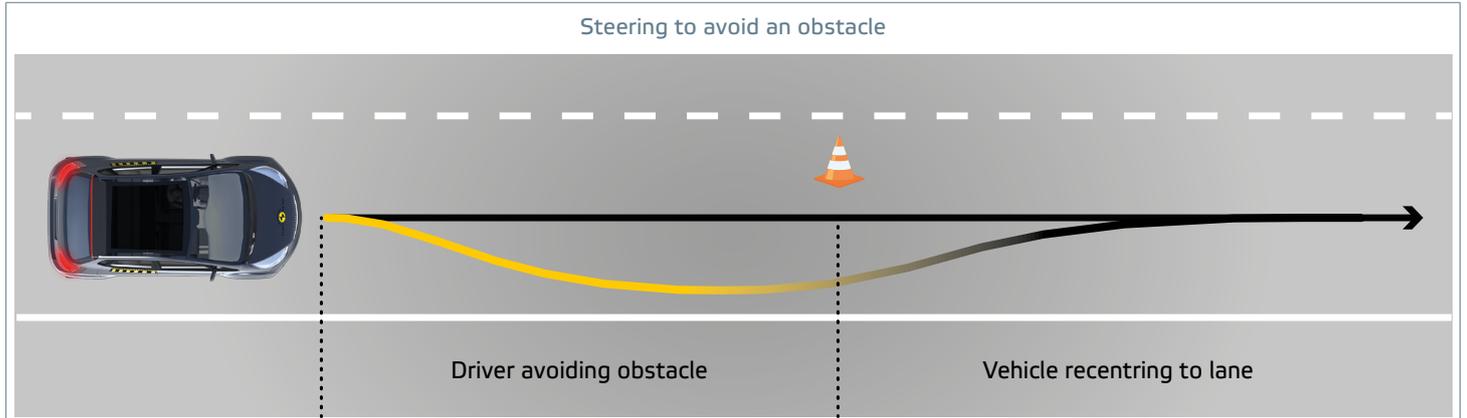
NO RESPONSE

### Comments

In the scenarios tested, ProPILOT responds to a stationary vehicle directly ahead and the ACC function will bring the car to halt up to 60 km/h after which the AEB/FCW system keeps supporting up to 90 km/h. In the slower-moving scenario, the car also responds well and provides full support across the test speed range, where in the braking lead vehicle scenarios the driver is required to be primarily in control. Late or no system response was witnessed in the cut-in and cut-out scenarios which are critical and challenging due to the rapidly changing conditions. Warnings are issued to alert the driver of the possible crash in these cases.

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

— STEERING SUPPORT PATH
— DRIVER STEERING PATH

**Comments**

In the scenarios tested, ProPILOT 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.