Euro NCAP
For Safer Cars

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Speed Control Function Assessment Procedure

Safe Driving

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PREFACE

DISCLAIMER: Euro NCAP has taken all reasonable care to ensure that the information published in this protocol is accurate and reflects the technical decisions taken by the organisation. In the unlikely event that this protocol contains a typographical error or any other inaccuracy, Euro NCAP reserves the right to make corrections and determine the assessment and subsequent result of the affected requirement(s).

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1 INTRODUCTION

The Speed Control Function (SCF) assessment evaluates the ability of the vehicle to accurately control the driver set speed under representative on-road driving conditions.

The assessment is based on data collected during the on-road drive. Actual vehicle speed is determined using the signal provided by the GNSS-IMU measurement system. Elevation data are also used to filter road segments according to the criteria defined in this procedure.

During the on-road drive, the driver is instructed to use the vehicle's speed control function for a significant part of the journey. Where traffic conditions and applicable speed limits allow, set speeds of 50 km/h, 80 km/h and 130 km/h shall be used to provide suitable data for the assessment.

2 SEGMENT SELECTION

2.1 Selection criteria

To obtain several candidates for each reference speed, the following speed ranges are defined:

- 43–50 km/h for the 50 km/h reference speed
- 73–80 km/h for the 80 km/h reference speed
- 123–130 km/h for the 130 km/h reference speed

All segments exhibiting a stable speed (speed variation ≤ 1 km/h) within one of the above-mentioned ranges over a time window of at least 20 seconds are pre-selected.

2.2 Exclusion criteria

All the pre-selected segments are automatically further checked to exclude those affected by the following conditions:

- poor GNSS reception: if the time elapsed since the last valid GNSS update exceeds 5 seconds at any point within a segment, the segment is excluded.

- slope: if the average road slope over the segment is more than 1% (i.e. $|height_{t_{end}} - height_{t_{start}}| / distance_{travelled} > 0.01$) then the segment is excluded.

All the remaining segments are finally selected as candidates for SCF assessment and are shown in the Evaluator “Segment Overview” (Figure 1).

2.3 Evaluation KPIs

Once integrated into the “Segment Overview”, the Evaluator determines the standard deviation and the mean error in km/h.

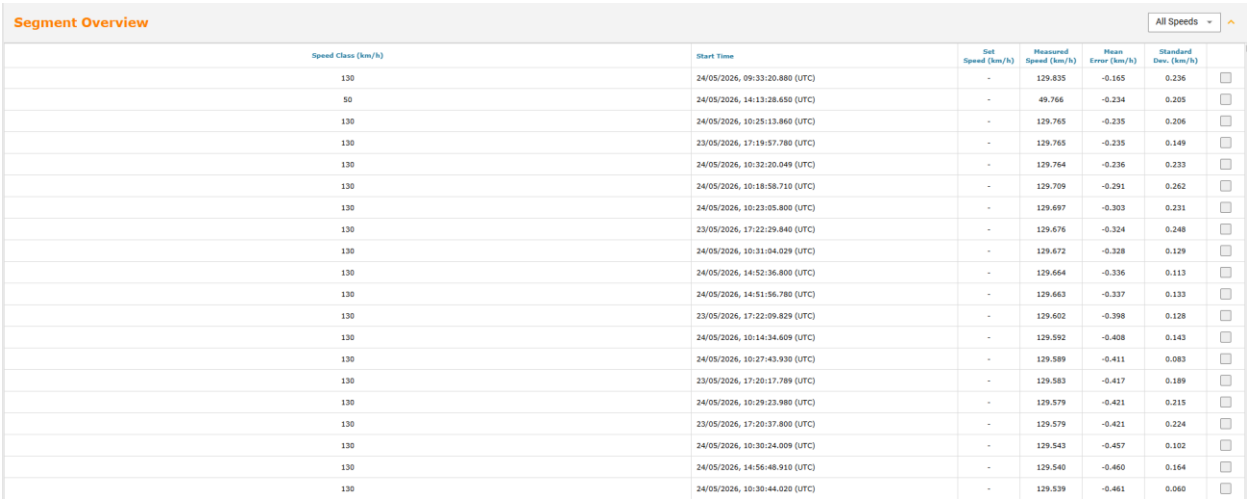


Figure 1. Example of Segment Overview with evaluation KPIs

3 EVALUATION

3.1 Automatic candidates pre-selection

For each of the reference speed, the Evaluator does pre-select the 3 candidates with the estimated lowest mean error. They appear in the top overview: “Speedometer Accuracy Segments”.

3.2 Inspector pre validation

The inspector must accept or reject segments after visual inspection of the video. This inspection is intended to detect the presence of external condition that may affect vehicle speed control (e.g., presence of a leading vehicle that may influence ACC speed). In case of rejection, the inspector can select any candidate in the segment overview which falls into the corresponding speed class.

3.3 Identification of the set speed

For each of the preselected candidates the data inspector must look at dashboard video, to identify the set speed and to report the value into the Evaluator (Figure 2). Then, the KPIs calculation will be updated considering the actual set speed instead of the reference speed class value.

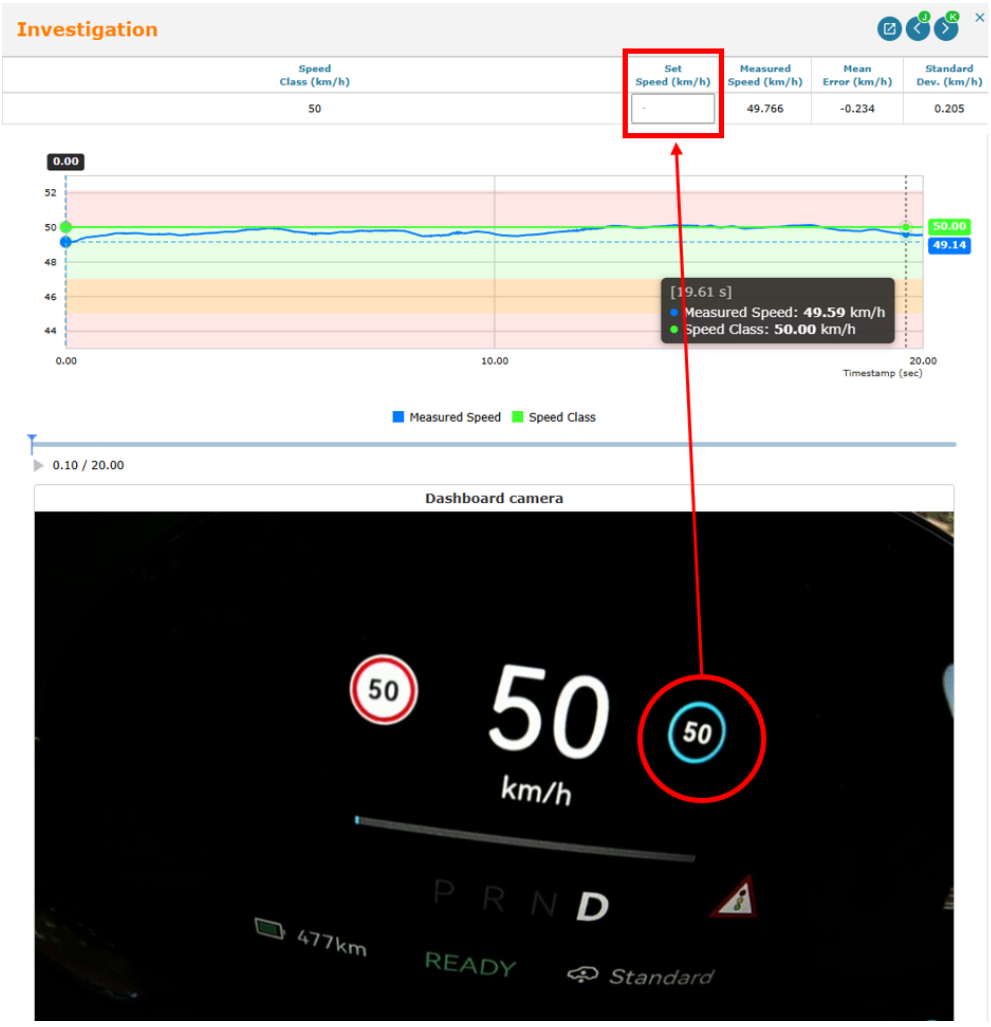
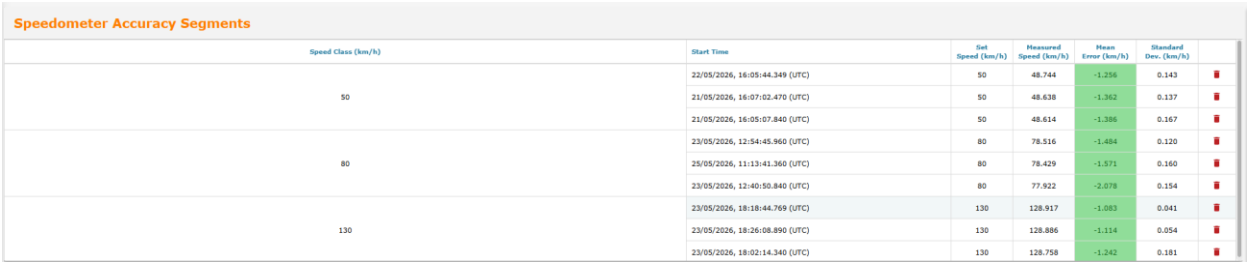


Figure 2. Example of the Investigation view

3.4 Scoring criteria

The Pass/Fail criteria are determined based on the mean error between the GPS speed and the set speed manually filled by the inspector. If at least one segments shows a mean error <-5 km/h then the Speed Control Function score is set to zero elseif at least one segments shows a mean error <-3 km/h then the Speed Control Function score is halved. Whereas, if all 9 selected segments show a mean error ≥-3 km/h and ≤0 km/h then the SCF score is not affected.



Speedometer Accuracy Segments

Speed Class (km/h)	Start Time	Set Speed (km/h)	Measured Speed (km/h)	Mean Error (km/h)	Standard Dev. (km/h)	
50	22/05/2026, 16:05:44.349 (UTC)	50	48.744	-1.256	0.143	
	21/05/2026, 16:07:02.470 (UTC)	50	48.638	-1.362	0.137	
	21/05/2026, 16:05:07.840 (UTC)	50	48.614	-1.386	0.167	
80	23/05/2026, 12:54:45.960 (UTC)	80	78.516	-1.484	0.120	
	25/05/2026, 11:13:41.360 (UTC)	80	78.429	-1.571	0.160	
	23/05/2026, 12:40:50.840 (UTC)	80	77.922	-2.078	0.154	
130	23/05/2026, 18:18:44.769 (UTC)	130	128.917	-1.083	0.041	
	23/05/2026, 18:26:08.890 (UTC)	130	128.886	-1.114	0.054	
	23/05/2026, 18:02:14.340 (UTC)	130	128.758	-1.242	0.181	

Figure 3. Example of selected segments for assessment