Euro NCAP
For Safer Cars

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Field Data Template

Crash Avoidance

Technical Bulletin CA 003

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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).

CONTENTS

INTRODUCTION

This document is intended to provide guidance to the Vehicle Manufacturer when submitting evidence of perception performance and function availability in the presence of adverse environmental and/or infrastructure conditions. These conditions are represented as perception-related robustness layers within the Euro NCAP Crash Avoidance assessment protocols.

The intent of this Technical Bulletin is to understand how the Vehicle Manufacturer has validated the relevant ADAS function under the presence of these robustness layers, particularly in real-world conditions such as Field Operational Tests, fleet monitoring, or other representative validation activities. Euro NCAP expects the Vehicle Manufacturer to provide sufficient evidence that the function has been exposed to, and evaluated under, the relevant adverse conditions.

The reporting template included in this document is there for standardization purposes across the many vehicles assessed by Euro NCAP. However, not all fields are necessarily expected to be completed in all cases, particularly where the requested information is not available, not applicable, or considered commercially sensitive. Where disclosure of specific figures is problematic, Euro NCAP welcomes alternative formats of evidence that demonstrate the validation scope, methodology, exposure to relevant conditions, and conclusions drawn by the Vehicle Manufacturer.

The purpose of the submission is not to benchmark Vehicle Manufacturers against prescribed perception KPIs, nor to directly compare reported performance figures between manufacturers. Rather, the objective is to assess whether the Vehicle Manufacturer has taken reasonable and appropriate efforts to validate the robustness of the function under the relevant environmental and infrastructure conditions.

Some degradation of functionality under certain adverse conditions may be expected and can be accepted, provided that the function is not fully unavailable under those conditions and that the Vehicle Manufacturer provides a technically justified explanation supported by validation evidence.

1 GENERAL INFORMATION

Item	Details
Manufacturer	[Enter]
Vehicle Model	[Enter]
Other models sharing the same system	[Enter]
S/W version at the time of the assessment	[Enter]
Report date [dd/mm/yyyy]	[Enter]

2 SENSOR SPECIFICATIONS

Sensor #	Item	Details
Sensor 1	Type (e.g., Camera, radar, LiDAR)	[Enter]
	Function (e.g., AEB, FCW, LKA)	[Enter]
	Countermeasures to increase availability (e.g., heating panel)	[Enter]
	Mounting position (schematics)	[Enter]
Sensor 2	Type (e.g., Camera, radar, LiDAR)	[Enter]
	Function (e.g., AEB, FCW, LKA)	[Enter]
	Countermeasures to increase availability (e.g., heating panel)	[Enter]
	Mounting position (schematics)	[Enter]
Sensor 3	Type (e.g., Camera, radar, LiDAR)	[Enter]
	Function (e.g., AEB, FCW, LKA)	[Enter]
	Countermeasures to increase availability (e.g., heating panel)	[Enter]
	Mounting position (schematics)	[Enter]

3 CLAIMED ROBUSTNESS LAYERS

Check the boxes where minimum function performance is claimed across collision partners.

Minimum function performance is defined as the system ability to detect and classify a road user under the presence of different robustness layers, with high availability. Temporary degradation is accepted under some circumstances – these are to be described in chapter 4.

Robustness layers (Perception)		Claimed performance across collision partner				
Type	**Layer**	**Car**	**PTW**	**Bicyclist**	**Pedestrian**	**Lane Boundary**
Target	Type	☐	☐	☐	☐	☐
	Appearance	☐	☐	☐	☐	☐
Environment	Adverse weather conditions	☐	☐	☐	☐	☐
	Illumination (Night time)	☐	☐	☐	☐	☐
	Illumination – Glare (High intensity sunlight)	☐	☐	☐	☐	☐
	Illumination – Glare (headlights from oncoming vehicles)	N/A	N/A	N/A	☐	N/A
	Infrastructure / clutter	☐	☐	☐	☐	N/A
	Obscuration / Obstruction	N/A	N/A	☐	☐	N/A

4 VALIDATION SUMMARY

4.1 Methodology

Describe the methods and tools used to evaluate perception performance and function availability under the presence of robustness layers:

Methodology used	Description of methodology
Perception training dataset	[Fill in if applicable]
FOT	[Fill in if applicable]
Field Test	[Fill in if applicable]
Fleet Insight	[Fill in if applicable]
Testing on Test Track	[Fill in if applicable]

Where:

Perception Training Dataset: Selective and targeted driving in environments with high exposure to various road users (e.g., different target types and appearances) under diverse conditions, such as adverse weather conditions (AWC), varying illumination, and different infrastructure/clutter scenarios.

FOT (Field Operational Test): Long-term studies conducted on a limited number of fleet vehicles under normal driving conditions. These vehicles are equipped with loggers and measurement systems to analyse driver behaviour, vehicle usage, and human-system interaction.

Field Test: A large-scale testing campaign using test drivers to simulate real-world user profiles, including different road environments and environmental conditions. Designed to balance true positives (TP) and false positives (FP), this test can also support re-simulations during the development phase.

Fleet Insight: Retrospective large-scale data collection from all customer vehicles, providing a fast feedback loop for continuous system improvement in real-world conditions. This process begins after the vehicle—or any vehicle sharing the same system—has been launched to the market.

Testing on a Test Track: System performance validation under controlled, repeatable, and reproducible conditions. This includes verifying true positive events in scenarios that are difficult to encounter naturally or unsafe to conduct in real-world environments.

4.2 Dataset

Enter the characteristics of the validation dataset collected in real-world traffic conditions, through the different method(s) used:

Item	Detail	Perception training dataset	FOT	Field Test	Fleet insight
Length [e.g. km]	-	[Enter]	[Enter]	[Enter]	[Enter]
Road category [%]	Urban	[Enter]	[Enter]	[Enter]	[Enter]
	Interurban	[Enter]	[Enter]	[Enter]	[Enter]
	Highway	[Enter]	[Enter]	[Enter]	[Enter]
Day/Nighttime [%]	Day time	[Enter]	[Enter]	[Enter]	[Enter]
	Nighttime	[Enter]	[Enter]	[Enter]	[Enter]
Sky [%]	Clear	[Enter]	[Enter]	[Enter]	[Enter]
	Cloudy	[Enter]	[Enter]	[Enter]	[Enter]
Road condition [%]	Dry	[Enter]	[Enter]	[Enter]	[Enter]
	Wet	[Enter]	[Enter]	[Enter]	[Enter]
	Snow	[Enter]	[Enter]	[Enter]	[Enter]

4.2.1 KPIs

KPI	Description	Actual observed values			
		Perception training dataset	FOT	Field Test	Fleet insight
Detection Rate	Percentage of correctly identified relevant* objects	[Enter]	[Enter]	[Enter]	[Enter]
Classification Accuracy	Precision in relevant* object identification	[Enter]	[Enter]	[Enter]	[Enter]
False Positive Rate	AEB function activations for non-existent objects and existing objects out of the collision path	[Enter]	[Enter]	[Enter]	[Enter]

* Relevant: Collision partner that may be relevant for a potential AEB function activation (e.g., within the range, lateral distance and target kinematics)

4.3 Object classification evidence

DISCLAIMER: The Vehicle Manufacturer declares that, for each of the evidences provided below on detection and classification, the function's collision avoidance strategy remains unchanged under these conditions compared to the Euro NCAP Crash Avoidance use case where speed reduction performance is claimed.

The Vehicle Manufacturer shall provide at lest 3 visual examples that shows system classification of across the claimed collision partners under the presence of the prescribed robustness layers, consisting of short clips of 3 to 5 seconds in .mp4 format, and labelled with a high level description in .txt format.

Robustness Layer	Collision Partner	3 evidence examples provided?	Evidence 1	Evidence 2	Evidence 3
Target Type	Car	☐	TT_C_1.mp4, TT_C_1.txt	TT_C_2.mp4, TT_C_2.txt	TT_C_3.mp4, TT_C_3.txt
	PTW	☐	TT_M_1.mp4, TT_M_1.txt	TT_M_2.mp4, TT_M_2.txt	TT_M_3.mp4, TT_M_3.txt
	Pedestrian	☐	TT_P_1.mp4, TT_P_1.txt	TT_P_2.mp4, TT_P_2.txt	TT_P_3.mp4, TT_P_3.txt
	Bicycle	☐	TT_B_1.mp4, TT_B_1.txt	TT_B_2.mp4, TT_B_2.txt	TT_B_3.mp4, TT_B_3.txt
Target Appearance	Car	☐	TA_C_1.mp4, TA_C_1.txt	TA_C_2.mp4, TA_C_2.txt	TA_C_3.mp4, TA_C_3.txt
	PTW	☐	TA_M_1.mp4, TA_M_1.txt	TA_M_2.mp4, TA_M_2.txt	TA_M_3.mp4, TA_M_3.txt
	Pedestrian	☐	TA_P_1.mp4, TA_P_1.txt	TA_P_2.mp4, TA_P_2.txt	TA_P_3.mp4, TA_P_3.txt
	Bicycle	☐	TA_B_1.mp4, TA_B_1.txt	TA_B_2.mp4, TA_B_2.txt	TA_B_3.mp4, TA_B_3.txt

Robustness Layer	Collision Partner	3 evidence examples provided?	Evidence 1	Evidence 2	Evidence 3
	Lane boundary	☐	TA_L_1.mp4, TA_L_1.txt	TA_L_2.mp4, TA_L_2.txt	TA_L_3.mp4, TA_L_3.txt
Adverse Weather Conditions	Car	☐	AW_C_1.mp4, AW_C_1.txt	AW_C_2.mp4, AW_C_2.txt	AW_C_3.mp4, AW_C_3.txt
	PTW	☐	AW_M_1.mp4, AW_M_1.txt	AW_M_2.mp4, AW_M_2.txt	AW_M_3.mp4, AW_M_3.txt
	Pedestrian	☐	AW_P_1.mp4, AW_P_1.txt	AW_P_2.mp4, AW_P_2.txt	AW_P_3.mp4, AW_P_3.txt
	Bicycle	☐	AW_B_1.mp4, AW_B_1.txt	AW_B_2.mp4, AW_B_2.txt	AW_B_3.mp4, AW_B_3.txt
	Lane boundary	☐	AW_L_1.mp4, AW_L_1.txt	AW_L_2.mp4, AW_L_2.txt	AW_L_3.mp4, AW_L_3.txt
Illumination (Night time)	Car	☐	IN_C_1.mp4, IN_C_1.txt	IN_C_2.mp4, IN_C_2.txt	IN_C_3.mp4, IN_C_3.txt
	PTW	☐	IN_M_1.mp4, IN_M_1.txt	IN_M_2.mp4, IN_M_2.txt	IN_M_3.mp4, IN_M_3.txt
	Pedestrian	☐	IN_P_1.mp4, IN_P_1.txt	IN_P_2.mp4, IN_P_2.txt	IN_P_3.mp4, IN_P_3.txt
	Bicycle	☐	IN_B_1.mp4, IN_B_1.txt	IN_B_2.mp4, IN_B_2.txt	IN_B_3.mp4, IN_B_3.txt
	Lane boundary	☐	IN_L_1.mp4, IN_L_1.txt	IN_L_2.mp4, IN_L_2.txt	IN_L_3.mp4, IN_L_3.txt
Illumination – Glare (High intensity sunlight)	Car	☐	IS_C_1.mp4, IS_C_1.txt	IS_C_2.mp4, IS_C_2.txt	IS_C_3.mp4, IS_C_3.txt
	PTW	☐	IS_M_1.mp4, IS_M_1.txt	IS_M_2.mp4, IS_M_2.txt	IS_M_3.mp4, IS_M_3.txt

Robustness Layer	Collision Partner	3 evidence examples provided?	Evidence 1	Evidence 2	Evidence 3
	Pedestrian	☐	IS_P_1.mp4, IS_P_1.txt	IS_P_2.mp4, IS_P_2.txt	IS_P_3.mp4, IS_P_3.txt
	Bicycle	☐	IS_B_1.mp4, IS_B_1.txt	IS_B_2.mp4, IS_B_2.txt	IS_B_3.mp4, IS_B_3.txt
	Lane boundary	☐	IS_L_1.mp4, IS_L_1.txt	IS_L_2.mp4, IS_L_2.txt	IS_L_3.mp4, IS_L_3.txt
Illumination – Glare (Headlights from vehicle vehicles)	**Pedestrian**	☐	IH_C_1.mp4, IH_C_1.txt	IH_C_2.mp4, IH_C_2.txt	IH_C_3.mp4, IH_C_3.txt
Infrastructure / Clutter	**Car**	☐	IC_C_1.mp4, IC_C_1.txt	IC_C_2.mp4, IC_C_2.txt	IC_C_3.mp4, IC_C_3.txt
	PTW	☐	IC_M_1.mp4, IC_M_1.txt	IC_M_2.mp4, IC_M_2.txt	IC_M_3.mp4, IC_M_3.txt
	Pedestrian	☐	IC_P_1.mp4, IC_P_1.txt	IC_P_2.mp4, IC_P_2.txt	IC_P_3.mp4, IC_P_3.txt
	Bicycle	☐	IC_B_1.mp4, IC_B_1.txt	IC_B_2.mp4, IC_B_2.txt	IC_B_3.mp4, IC_B_3.txt
Obscuration / Obstruction	**Pedestrian**	☐	OO_P_1.mp4, OO_P_1.txt	OO_P_2.mp4, OO_P_2.txt	OO_P_3.mp4, OO_P_3.txt
	Bicycle	☐	OO_B_1.mp4, OO_B_1.txt	OO_B_2.mp4, OO_B_2.txt	OO_B_3.mp4, OO_B_3.txt