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EUROPEAN NEW CAR
ASSESSMENT PROGRAMME

Technical Bulletin

aPLI Dynamic Certification

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Preface

DISCLAIMER: Euro NCAP has taken all reasonable care to ensure that the information published in this document 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).

EUROPEAN NEW CAR ASSESSMENT PROGRAMME (Euro NCAP)

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1. aPLI Dynamic Certification Corridors

- 1.1 The dynamic certification corridors for the aPLI are drafted according to the method established at UNECE level for the FlexPLI.^{1 2}
- 1.2 Two types of linear dynamic certification tests are performed with each impactor, the knee test (type I) and the femur test (type II).
- 1.3 The impactor readings of the femur and the tibia strain gauges as well as the knee potentiometers shall meet the following certification corridors.
- 1.4 For the knee test (type I):

		Femur 3	Femur 2	Femur 1	Tibia 1	Tibia 2	Tibia 3	Tibia 4	ACL	PCL	MCL
Certification Corridors	upper	134	178	208	334	272	193	116	4	8	16
(Knee Test)	lower	101	133	162	291	238	160	92	3	6	12

- 1.5 For the femur test (type II):

		Femur 3	Femur 2	Femur 1	Tibia 1	Tibia 2	Tibia 3	Tibia 4	ACL	PCL	MCL
Certification Corridors	upper	190	238	293	251	228	164	83	4	10	24
(Femur Test)	lower	147	189	233	206	182	132	63	3	8	20

¹ Zander, O: „Refinement of Corridors for FlexPLI Dynamic Assembly Certification Tests.” Document TF-RUCC-4-04. Available at <https://wiki.unece.org/display/trans/TF-RUCC+4th+session>

² Zander, O.: Dynamic Certification Corridors for aPLI according to UNECE Method. Euro NCAP Document PED-2102-02

2. Corridor Making Method

2.1 The method for the determination of the type I and type II dynamic certification corridors is described in TF-RUCC-4-04². The following steps were analogously followed:

- a) Definition of reproducibility corridors
 - a. Determination of individual coefficients of variation (CV) for all segments of the three master legs
 - b. Determination of segments for drafting the reproducibility corridors (CV < 5%)
 - c. Calculation of pooled means of all segments with CV < 5%
 - d. Calculation of reproducibility corridors (pooled mean +/-10%)

- b) Definition of certification corridors
 - a. Determination of reproducible test results
 - b. Determination of individual maxima and minima of all reproducible segments
 - c. Determination of corridor limits, considering a scatter in testing of +/- 5%

2.2 Steps a) and b) were followed for both, test type I and test type II.

2.3 Inverse test data from the three master legs (SN01, SN02 and SN03) was generated in three master labs. Altogether, a set of 21 type I inverse tests and 21 type II inverse tests was considered for the definition of the inverse certification corridors. After filtering according to the procedure marked out in chapter 2.1, the following results could be used for the final corridors:

Type I: 21 (MCL: 18)

Type II: 21 (Femur-3: 18, ACL: 15)