

TÜV SÜD Benchmark Test 2024

NOKIAN TYRES
WETPROOF 1

225/45 R17 94W XL

Add value.
Inspire trust.

Report No. 713329997-WP

TÜV SÜD PS – BENCHMARK TEST 2024

TIRE DETAILS

CANDIDATE TIRE	COMPETITOR TIRES (in testing order)			
				
NOKIAN TYRES **WETPROOF 1** **225/45 R17 94W XL** **DOT 1C0 U1YCKA 4423-4523**	**HANKOOK** **VENTUS PRIME 4** **225/45 R17 94W XL** **DOT 216RR 18 HB 2623**	**NEXEN** **N'FERA PRIMUS** **225/45 ZR17 94W XL** **DOT 035 H8 HMLL 4723**	**PIRELLI** **CINTURATO P7 C2** **225/45 R17 94Y XL** **DOT 193 CJ062T 3823**	**VREDESTEIN** **ULTRAC** **225/45 R17 94Y XL** **DOT 023 7RB828 3223-4923**

- All test samples were purchased in the normal market by TÜV SÜD.
- TÜV SÜD randomly selected the tires for the individual tests.

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TEST DETAILS

TEST LOCATIONS

- Wet & dry: Nokian Tyres Hakka Ring (E)
- Rolling resistance: TÜV SÜD Product Service Garching (D)

TEST VEHICLES

- VW Golf VIII GTI, VW Golf VIII 1.5eTSI, Skoda Superb 2.0TDI

PROCEDURE & EVALUATION

- In most tests, the reference/control tire is tested repeatedly in the progress of the test to detect and consider changes of the ambient test parameters and correct its performance by linear interpolation.
- Generally, all tires in a test are primarily evaluated in relation to the reference/control tire.
- The performance is expressed as a percentage value, calculated on the basis of the measured and corrected test data.
- In this present evaluation, the performance of each tire is assessed relative to Nokian Tyres Wetproof 1 (≙ 100%).
- In all evaluations, a percentage >100% means better and <100% means worse.

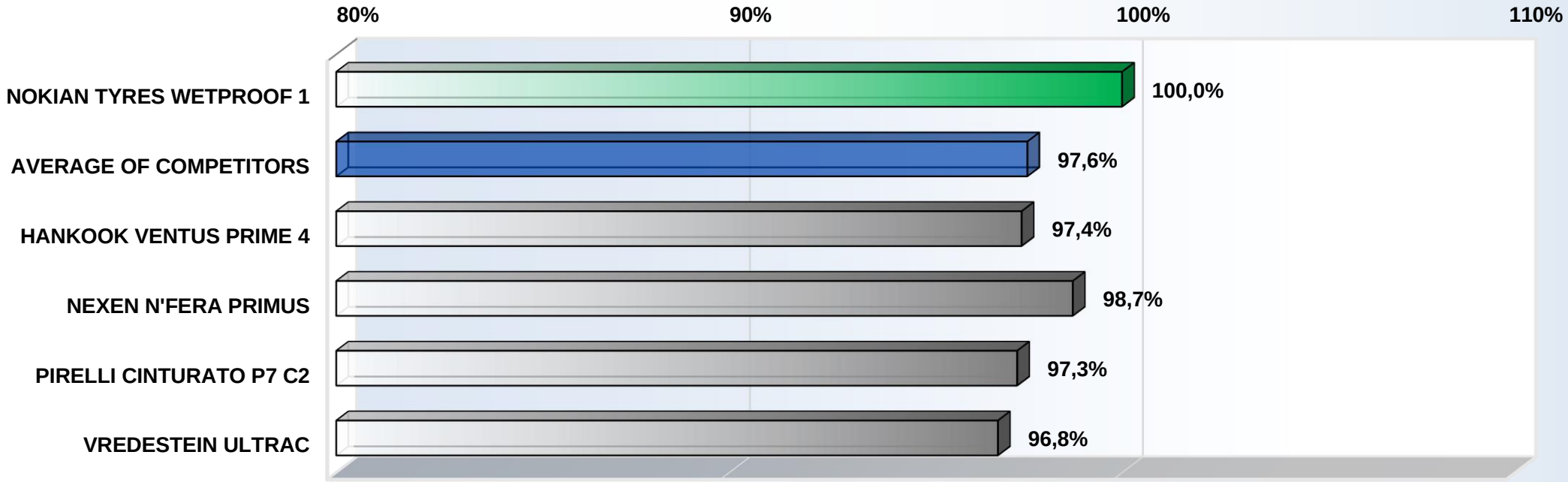
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TEST RESULTS

AQUAPLANING STRAIGHT-LINE

- Objective measurement of longitudinal aquaplaning performance; water depth ~ 8 mm
- Result: Aquaplaning speed [km/h] at 15% slip

AQUAPLANING STRAIGHT-LINE PERFORMANCE * [%]



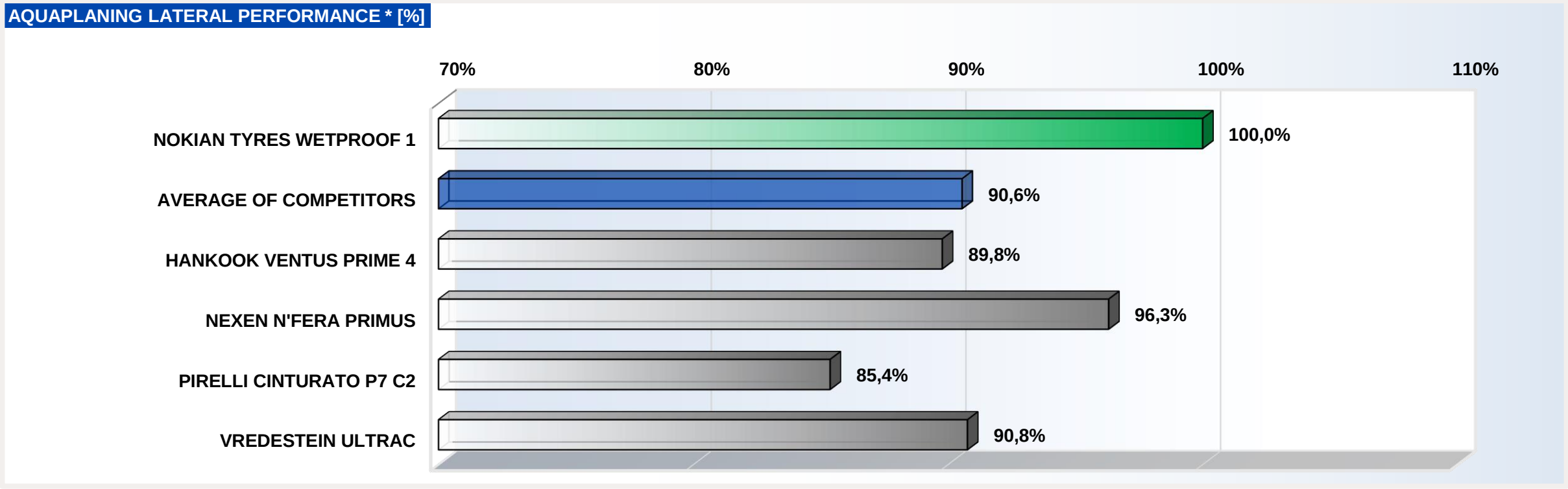
*) The calculation of the percentage performance is based on the measured aquaplaning speeds.

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TEST RESULTS

AQUAPLANING LATERAL

- Objective measurement of lateral aquaplaning performance; water depth ~ 8 mm, curve radius = 105 m
- Result: Max. lateral acceleration [m/s²] & Integral A (resulting from the graph shape of the measured lateral accelerations)



*) The calculation of the percentage performance is based on the integral A resulting from the graph shape of the measured lateral accelerations.

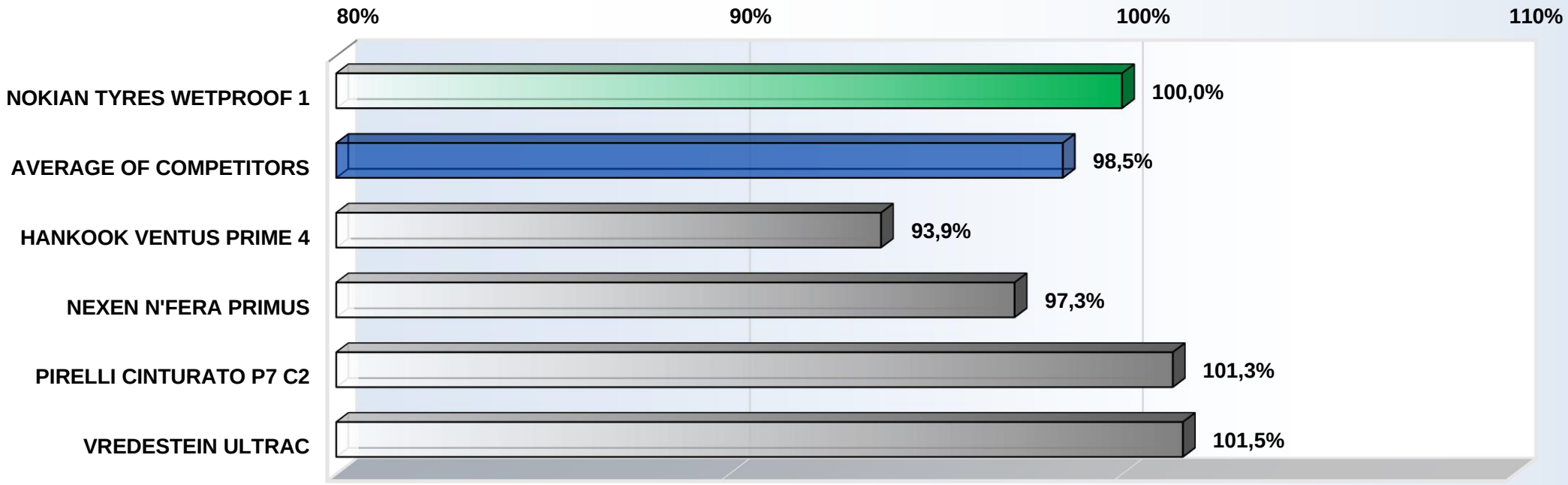
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TEST RESULTS

WET BRAKING

- ABS-braking on wet asphalt surface
- Result: Ø Stopping distance [m] from 80 to 20 km/h → Mean deceleration [m/s²]

WET BRAKING PERFORMANCE * [%]



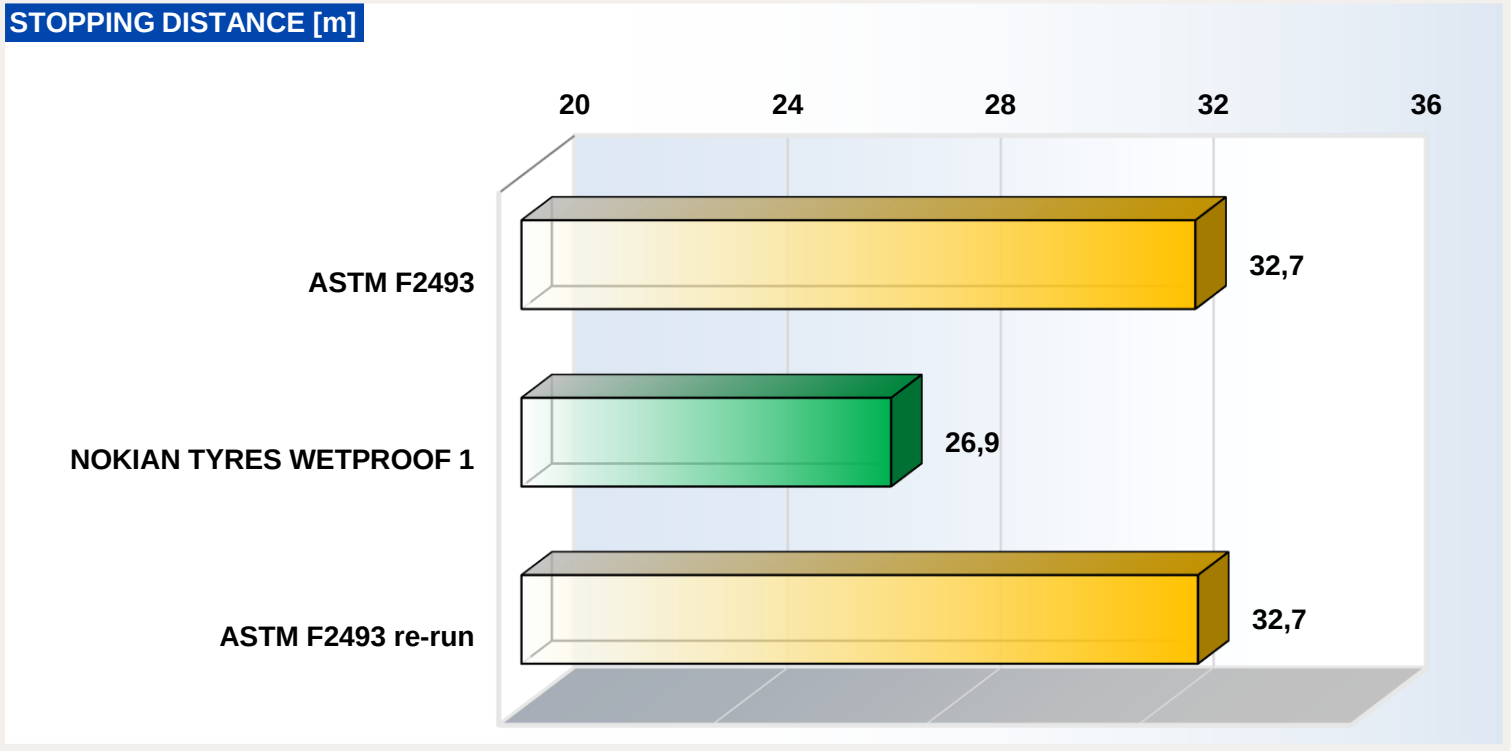
*) The calculation of the percentage performance is based on the mean deceleration values resulting from the measured braking distances.

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TEST RESULTS

WET GRIP INDEX acc. to ECE R117

- ABS-braking on wet asphalt surface acc. to ECE R117 Annex 5
- Result: Ø Stopping distance [m] from 80 to 20 km/h → Mean deceleration [m/s²] → Wet Grip Index (G)



TIRE BRAND	T_{Air} / $T_{Surface}$ [°C]		WET GRIP INDEX (G)
ASTM F2493	13,6	14,9	-
NOKIAN TYRES WETPROOF 1	14,7	16,1	1,59
ASTM F2493 re-run	14,9	16,2	-

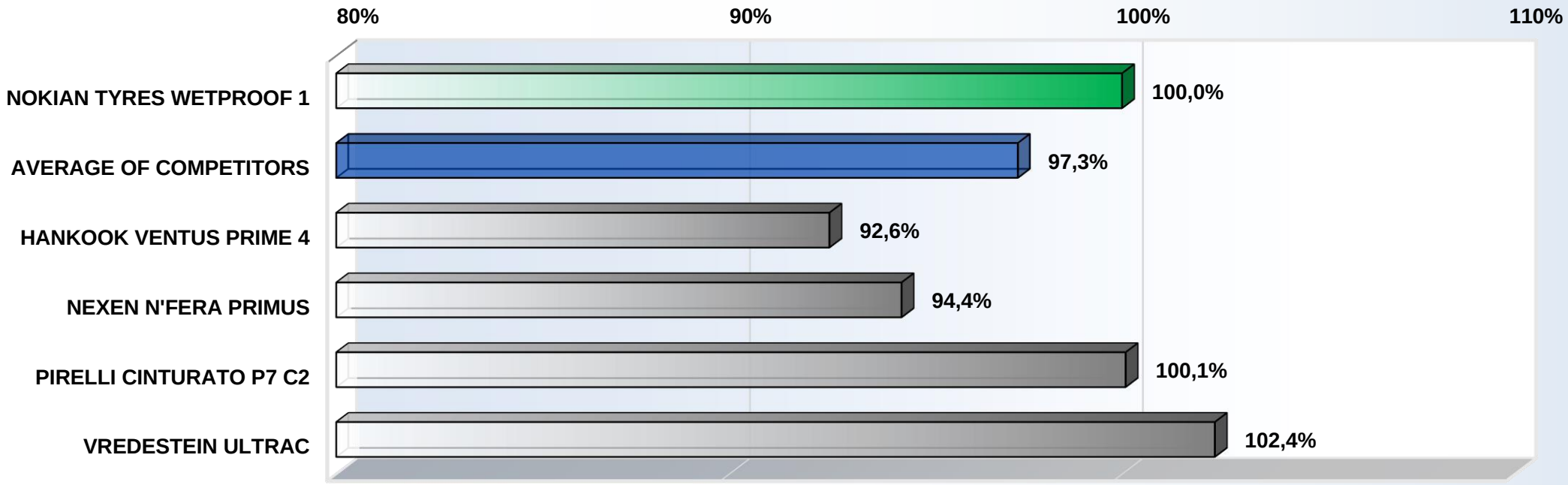
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TEST RESULTS

WET HANDLING

- Subjective assessment and lap time on a wet handling circuit (track length: 1560 m)
- Result: Ø Rating (min. 1, max. 10) and Ø lap time [s] → average speed [km/h]; total result from speed and rating scores (2:1)

WET HANDLING PERFORMANCE * [%]



*) The calculation of the percentage performance is based on the speed and the rating scores (at the ratio 2:1).

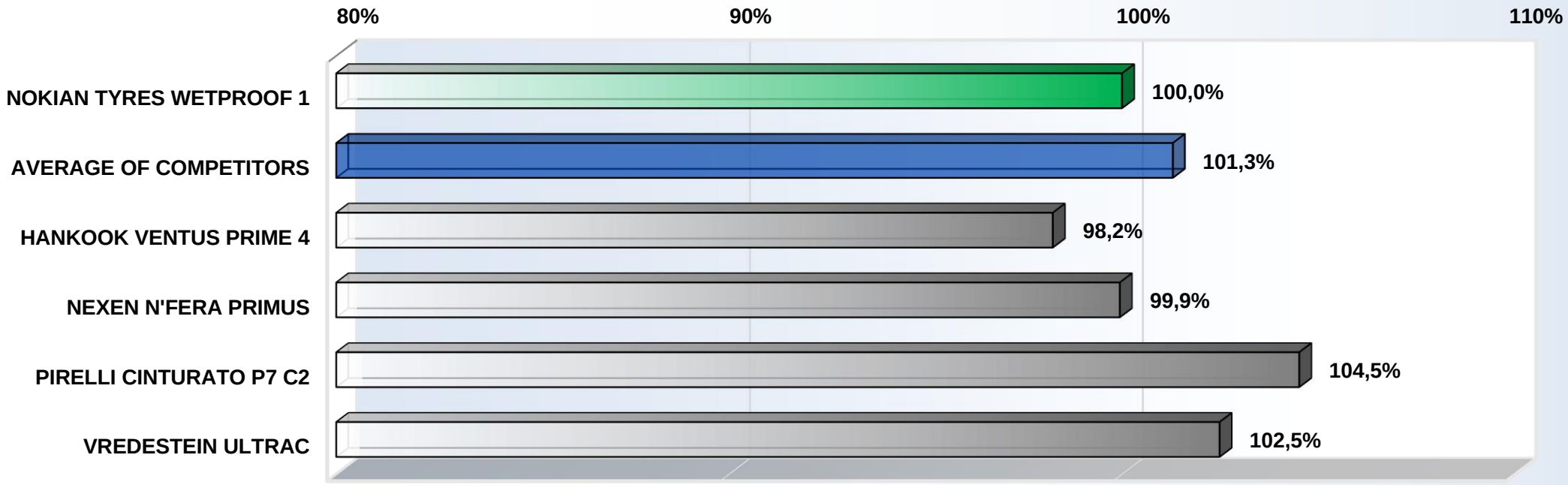
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TEST RESULTS

DRY BRAKING

- ABS-braking on dry asphalt surface
- Result: Ø Stopping distance [m] from 100 to 0 km/h → Mean deceleration [m/s²]

DRY BRAKING PERFORMANCE * [%]



*) The calculation of the percentage performance is based on the mean deceleration values resulting from the measured braking distances.

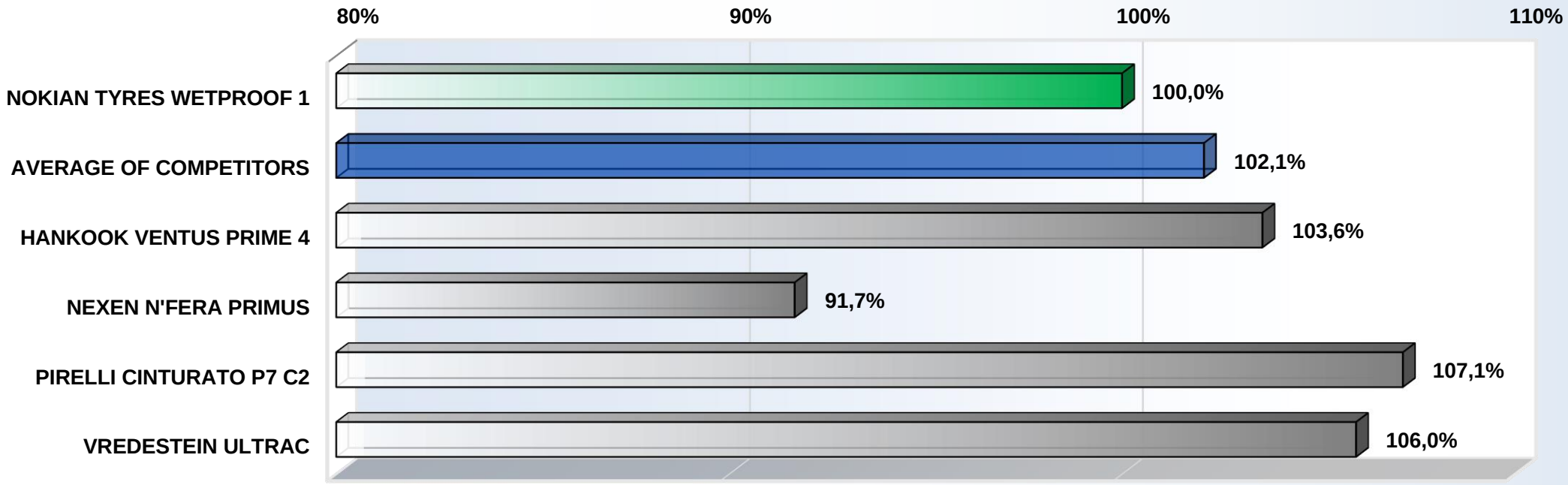
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TEST RESULTS

ROLLING RESISTANCE

- Acc. to ECE R117 Annex 6
- Result: Rolling resistance coefficient (c_R) EC label value [kg/t]

ROLLING RESISTANCE PERFORMANCE * [%]



*) The calculation of the percentage performance is based on the reciprocal values of the measured rolling resistance forces.

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SUMMARY OF RESULTS

Percentage > 100% means better, percentage < 100% means worse.	NOKIAN TYRES WETPROOF 1	HANKOOK VENTUS PRIME 4	NEXEN N'FERA PRIMUS	PIRELLI CINTURATO P7 C2	VREDESTEIN ULTRAC
AQUAPLANING STRAIGHT-LINE	100,0%	97,4%	98,7%	97,3%	96,8%
AQUAPLANING LATERAL	100,0%	89,8%	96,3%	85,4%	90,8%
WET BRAKING	100,0%	93,9%	97,3%	101,3%	101,5%
WET GRIP INDEX (ECE R117 Annex 5)	1,59	-	-	-	-
WET HANDLING	100,0%	92,6%	94,4%	100,1%	102,4%
DRY BRAKING	100,0%	98,2%	99,9%	104,5%	102,5%
ROLLING RESISTANCE (ECE R117 Annex 6)	100,0%	103,6%	91,7%	107,1%	106,0%

