

Decision rule for the evaluation of conformity of test results

Dear customer,

The standard DIN EN ISO/IEC 17025:2018 (General Requirements for the Competence of Testing and Calibration Laboratories) contains the requirement that whenever test results are used for a conformity assessment, we must agree on a decision rule with our customers.

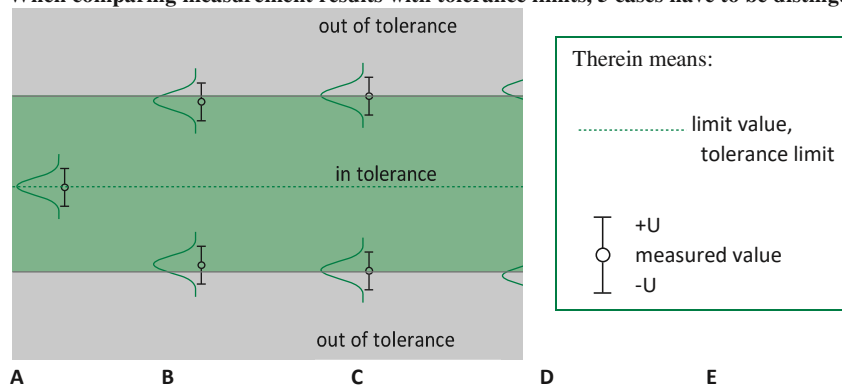
In this letter we inform you about the application of the decision rule in the following laboratories of DEKRA Automobil GmbH:
> Laboratory for Environmental and Product Analysis in Stuttgart and Halle

What does decision rule mean?

Every measurement result is subject to a measurement uncertainty. The measurement uncertainty can be specified as an interval within which the correct/true value lies with a certain confidence level. The above mentioned DEKRA laboratories calculate the measurement uncertainty with a 95% confidence level.

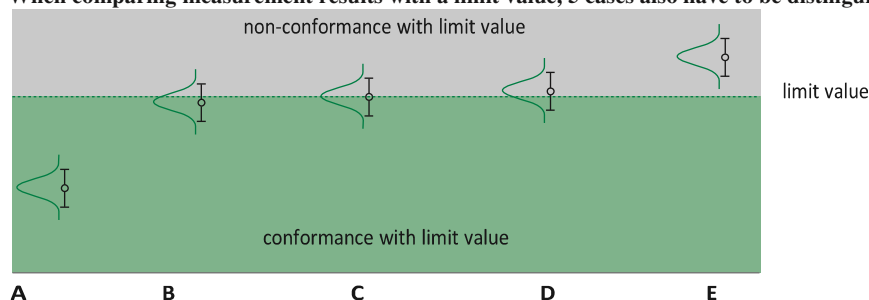
If measurement results are to be used for a conformity assessment, e.g. comparison with a limit value or an otherwise defined specification, and if the measurement result is close to the limit value, the measurement uncertainty is of decisive importance.

When comparing measurement results with tolerance limits, 5 cases have to be distinguished:



Test results and their measurement uncertainties in relation to an upper and lower tolerance limit

When comparing measurement results with a limit value, 5 cases also have to be distinguished:



Test results and their measurement uncertainties in relation to an upper limit value

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Case A: Measurement result is below the limit value/within the tolerance limits even with consideration of the measurement uncertainty.

Case B: Measurement result is below the limit value/within the tolerance limits. But with consideration of the measurement uncertainty it is not safely below the limit value / within the tolerance limits (confidence level 95%).

Case C: Measurement result is on the limit value/on the tolerance limits.

Case D: Measurement result is above the limit value/outside the tolerance limits. But with consideration of the measurement uncertainty it is not safely above the limit value/not safely outside the tolerance limits (confidence level 95%).

Case E: Measurement result is above the limit value/outside the tolerance limits even with consideration of the measurement uncertainty. If there are no specifications in the applicable standard or regulation and also no customer-specific requirements for the conformity assessment, the above-mentioned laboratories of DEKRA Automobil GmbH apply the following decision rule as standard:

Case A and B: For measurement results which, including their measurement uncertainty, are below the limit value/within the tolerance limits and measurement results which are below the limit value/ within the tolerance limits but whose measurement uncertainty range **exceeds this limit value/ tolerance limit, the limit value/tolerance is pass.**

Case C and D: In the case of measurement results that lie at the limit value/on the tolerance limit and measurement results that lie above the limit value/outside the tolerance limits, but whose measurement uncertainty range falls below this limit value/tolerance limit, the limit value/tolerance **limit is considered to be met only partially**. Taking the measurement uncertainty into account, the measurement result could still meet the requirements, but the risk of exceeding is high.

Case E: BIn the case of measurement results which, including their measurement uncertainty, are **above the limit value/outside the tolerance, the limit value/tolerance fail.**

If you would like a different decision rule, please feel free to let us know. You can reach us by e-mail address testlab@dekra.com

Valid exclusively for DEKRA Automobil GmbH, Laboratory for Environmental and Product Analysis in Stuttgart and Halle and Laboratory for Materials Technology and Damage Analysis in Saarbruecken. Status: 06.04.2021

DEKRA Automobil GmbH
Laboratory for Environmental and Product Analysis
Handwerkstrasse 17
70565 Stuttgart
Germany
Phone +49.711.7861-4160
testlab@dekra.com

[dekra.de/labor](https://www.dekra.de/labor)