

# 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.

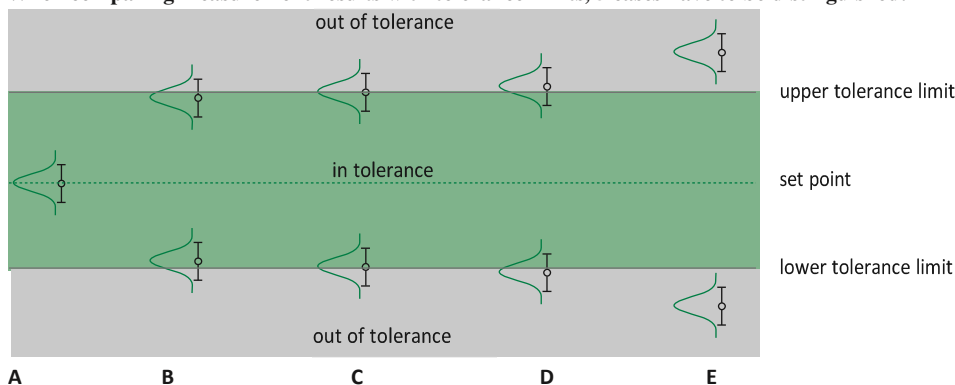
In this letter we inform you about the application of the decision rule in the following laboratories of DEKRA Automobil GmbH:  
 > Laboratory for Environmental and Product Analysis in Stuttgart and Halle

## 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:

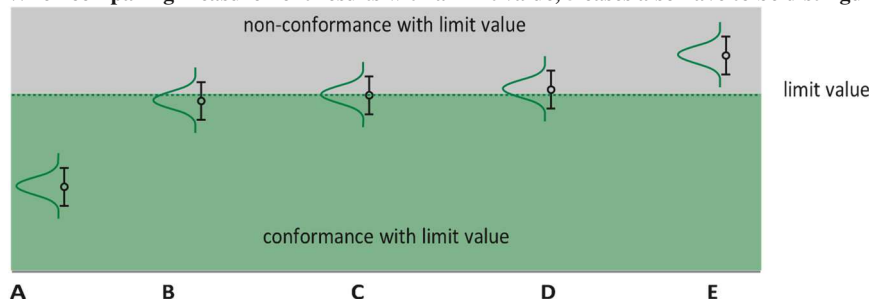


Test results and their measurement uncertainties in relation to an upper and lower tolerance limit

Therein means:

- ..... limit value, tolerance limit
- +U
- measured value
- U

### 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

# Decision rule for the evaluation of conformity of test results

**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](mailto:testlab@dekra.com)

Valid exclusively for DEKRA Automobil GmbH, Laboratory for Environmental and Product Analysis in Stuttgart and Halle, Status: 06.04.2021

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