Decision rule for the evaluation of conformity of test results

Dear customer,

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 are informing you about the application of the decision rule in the laboratories of DEKRA Testing and Certification GmbH at the following locations:

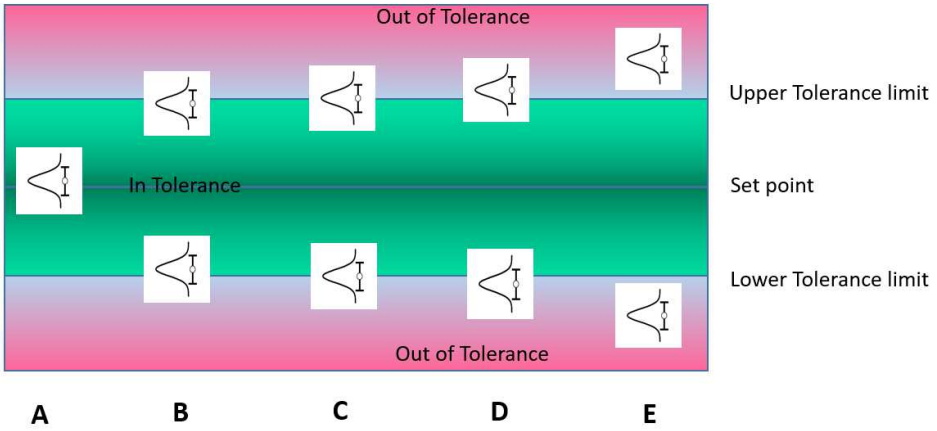
- Stuttgart: Handwerkstraße 17,70565 Stuttgart
  Schulze-Delitzsch-Straße 56, 70565 Stuttgart
- Dresden: Enderstraße 92b, 01277 Dresden
- Bochum: Dinnendahlstraße 9, 44809 Bochum
  Seilfahrt 101, 44809 Bochum
- Essen: Adlerstraße, 45307 Essen

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. In the laboratory of DEKRA Testing and Certification GmbH, the measurement uncertainty is calculated with a 95% confidence level.

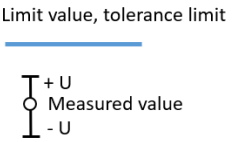
If measurement results are to be used for a conformity assessment, e.g., a comparison with a limit value or an otherwise defined specification, and if the measurement result is close to the limit value, the measurement uncertainty is of decisive importance.

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

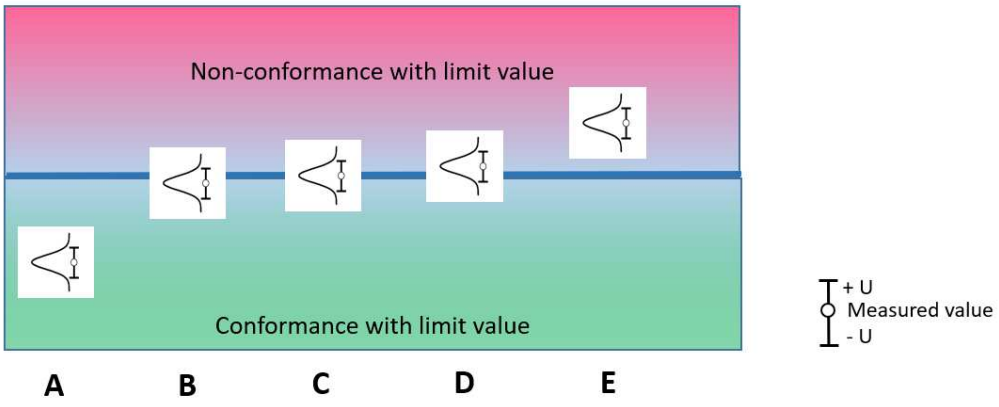


Test results and their measurement uncertainties in relation to an upper and a lower tolerance limit

Therein means:



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



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

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

Case B: Measurement result is below the limit value/within the tolerance limits. But considering 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 considering 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 considering 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 laboratory of DEKRA Testing and Certification GmbH will 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 is 'fail'**.

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

If you would like a different decision rule, please feel free to let us know. For this purpose, please contact your contact person at DEKRA Testing and Certification GmbH.