Criteria and procedures for the approval of the quality systems of measuring instruments manufacturers

according to

- the German Measures and Verification Ordinance (MessEV), Annex 4, module D or D1
- the European Measuring Instruments Directive (2014/32/EU, MID), module D or D1
- the European Directive on nonautomatic Weighing Instruments (2014/31/EU, NAWID), module D or D1
Structure

• Introduction
• Comparison ISO 9001-certification / QS-approval
• Procedure QS-approval
• Contact
New German Measuring and Verification Law (since 2015)

Former German EichG (until 2014)

- PTB
  - Type approval
- Verification authority
  - Initial verification

New German MessEG (since 2015)

- Manufacturer + CAB
  - Conformity assessment
- Manufacturer
  - Conformity declaration
- Verification authority
  - Market surveillance
- Verification authority
  - Verification
  - User surveillance

Bringing to the market

Use
Roll-out of new measuring instruments

Typical procedure at a manufacturer

Market research → Development Construction → Development Verification → Process planning → Production

Supplier → Purchase → Distribution, Start-up, service, maintenance

Concept, Customer requirement specifications → Product requirement specifications, Design, Techn. Documentation, Prototype

Specimens, Type tests, Design-validation

Manufacturing instructions, Production facilities, Meas. and test equipment Contracts with suppliers

Components, Final products, Final inspection

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Former legal inspections

Old German verification law (before 2015)

- Market research
- Development Construction
- Development Verification
- Process planning
- Production
- Distribution, Start-up, service, maintenance

Concept, Customer requirement specifications
Product requirement specifications, Design, Techn. Documentation, Prototype
Specimens, Type tests, Design-validation
Manufacturing instructions, Production facilities, Meas. and test equipment
Components, Final products, Final inspection

Type approval

Initial verification

Type approval

Initial verification
## Conformity assessment procedures (modules) according to the German MessEV annex 4 (since 2015)

### Technical documentation of the manufacturer

<table>
<thead>
<tr>
<th>Module</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mod. A</td>
<td>Internal production control</td>
</tr>
<tr>
<td>Mod. A1</td>
<td>Internal production control + Product testing (100%) by CAB or accred. internal body</td>
</tr>
<tr>
<td>Mod. A2</td>
<td>Internal production control + spot checks by CAB or accred. internal body</td>
</tr>
<tr>
<td>Mod. B</td>
<td>Type examination by N.B. (Notified Body)</td>
</tr>
<tr>
<td>Mod. C</td>
<td>Internal production control</td>
</tr>
<tr>
<td>Mod. C1</td>
<td>Internal production control + prod. testing (100%) by CAB or accred. internal body</td>
</tr>
<tr>
<td>Mod. A2</td>
<td>Internal production control + spot checks by CAB or accred. internal body</td>
</tr>
<tr>
<td>Mod. D</td>
<td>Assessment + surveillance of QS production by CAB</td>
</tr>
<tr>
<td>Mod. D1</td>
<td>Assessment + surveillance of QS production by CAB</td>
</tr>
<tr>
<td>Mod. E</td>
<td>Assessment + surveillance of QS product by CAB</td>
</tr>
<tr>
<td>Mod. E1</td>
<td>Assessment + surveillance of QS product by CAB</td>
</tr>
<tr>
<td>Mod. F</td>
<td>Product verification by CAB (if so, statistic. verific.)</td>
</tr>
<tr>
<td>Mod. G</td>
<td>Unit verification by CAB</td>
</tr>
<tr>
<td>Mod. H</td>
<td>Assessment and surveillance of full Quality Assurance by CAB</td>
</tr>
<tr>
<td>Mod. H1</td>
<td>Assessment and surveillance of full Quality Assurance + Design examination by CAB</td>
</tr>
<tr>
<td>Mod. B</td>
<td>Type examination by N.B. (Notified Body)</td>
</tr>
<tr>
<td>Mod. D</td>
<td>Assessment + surveillance of QS production by CAB</td>
</tr>
<tr>
<td>Mod. E</td>
<td>Assessment + surveillance of QS product by CAB</td>
</tr>
<tr>
<td>Mod. F</td>
<td>Product verification by CAB (if so, statistic. verific.)</td>
</tr>
</tbody>
</table>

### Possible:
For all kinds of instruments: **B+D, B+F**
Further modules for specific kinds of instruments

*See: [www.rea.ptb.de](http://www.rea.ptb.de)*
Conformity assessment procedures (modules) according to directive 2014/32/EU (MID) since 2006

Technical documentation of the manufacturer

- **Mod. A**: Internal production control
- **Mod. A2**: Internal production control + product testing
- **Mod. B**: Type examination
- **Mod. C**: Internal production control
- **Mod. C1**: Internal production control + product testing
- **Mod. D**: Assessment + surveillance of QS production
- **Mod. D1**: Assessment + surveillance of QS production
- **Mod. E**: Assessment and surveillance of QS product
- **Mod. E1**: Assessment and surveillance of QS product
- **Mod. F**: Product verification (if so, statistic. verification)
- **Mod. F1**: Product verification (if so, statistic. verification)
- **Mod. G**: Unit verification
- **Mod. H**: Assessment and surveillance of full Quality Assurance
- **Mod. H1**: Assessment and surveillance of full Quality Assurance + Design examination

• **MI-001**, Water meters:
  - **MI-002**, Gas meters and volume conversion devices
  - **MI-003**, Active electrical energy meters
  - **MI-004**, Heat meters
  - **MI-005**, Measuring systems for the continuous and dynamic measurement of quantities of liquids other than water
  - **MI-006**, Automatic weighing instruments
  - **MI-007**, Taximeters
  - **MI-008**, Material measures
  - **MI-009**, Dimensional measuring instruments
  - **MI-010**, Exhaust gas analysers

  Mechanical systems:
  - Electromechanical systems:
  - Electronic systems or systems containing AWI:
  - Mechanical or electromechanical:
  - Electronic or with SW:

B+D, B+F, H1
B+D, B+F, H1
B+D, B+F, H1
B+D, B+F, H1

PTB-Offer:

- **Mod. B, D, D1, G, H1**
- **H1** only for **MI-001** and **MI-004**
Conformity assessment procedures (modules) according to directive 2014/31/EU (NAWID)

Possible:

- Nonautomatic weighing instruments:
  
  B+D, B+F, G

- Nonautomatic weighing instruments, which do not use electronic devices and the load-measuring device of which does not use a spring to balance the load:
  
  B+D, B+F, D1, F1, G

- If the instrument’s performance is sensitive to gravity variations, the conformity assessment according to module D, D1, F, F1 or G may be carried out in two stages, with the second stage carried out at the place of use of the instrument.
Detailed description of the modules

German Measures and Verification Ordinance (MessEV):

https://www.gesetze-im-internet.de/messev/MessEV.pdf

See annex 4:
- Part 1 „General provisions“
- Part 2 „Details of conformity assessment procedures“

European Measuring Instruments Directive 2014/32/EU (MID):


See annex II

European Directive on Nonautomatic Weighing Instruments 2014/31/EU (NAWID):


See annex II
Module combination B+F

Modules B+F: Type examination (B) + Product verification (F)

Applicable for small batch production
*(Comparable to former type approval and verification)*
Module combination B+D

Modules B+D: Type examination (B) + QS-approval (D)

Applicable for large batch production with an existing ISO 9001 certificate
3.2. The quality assurance system must be so structured that the **compliance of the measuring instrument with the type described in the type examination certificate and the relevant requirements of the Weights and Measures Act and this Regulation is ensured.**

3.3. All the elements, requirements and provisions adopted by the manufacturer must be **documented in a systematic and orderly manner in the form of written principles, procedures and instructions.** This quality system documentation must be designed in such a manner as to ensure consistent interpretation of the **quality programmes, plans, manuals and records.** It must contain in particular an adequate description of the following:

3.3.1. The **quality objectives and organisational structure, responsibilities and powers of the management with regard to product quality,**

3.3.2. the corresponding **manufacturing, quality control and quality assurance techniques, processes and systematic measures** that will be implemented,

3.3.3. the **examinations and tests** that will be carried out before, during and after manufacture, and the frequency with which they will be carried out,

3.3.4. **quality records** such as inspection reports, test data, calibration data and qualification reports on the personnel involved and other reports required to assess the quality assurance system and

3.3.5. the means of **monitoring the achievement of the required product quality** and the **effective operation of the quality assurance system.**
Module D1

Audit + surveillance

Market research → Development Construction → Development Verification

Concept, Customer requirement specifications → Product requirement specifications, Design, Techn. Documentation, Prototype

Specimens, Type tests, Design-validation

Process planning

Production

Supplier

Purchase

Distribution, Start-up, service, maintenance

Manufacturing instructions, Final products, Final inspection facilities, Meas. and test equipment Contracts with suppliers

Conformity declaration

Modules D1: QS-approval production (D1) - c.f. D without B
Module H1

Market research

Development Construction → Development Verification → Process planning → Production

Specimens, Type tests, Design validation

Manufacturing instructions, Production facilities, Meas. and test equipment

Components, Final products, Final inspection

Supplier → Purchase

Distribution, Start-up, service, maintenance

Design examination

Audit + surveillance

Modules B+D: Full Quality Assurance + Design Examination

Applicable for manufacturers with type examination facilities and existing ISO 9001 certificate

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Extend of the audit program

• **Module D:**
  The audit program covers all sites, where quality assurance measures occur, which are necessary to ensure the conformity of the measuring instruments with the approved type, the technical documentation, and the other requirements of MessEG, NAWID or MID. This may include suppliers of service partners of the manufacturer. Existing QS approvals will be taken into consideration.

• **Module D1:**
  In addition to conformity of the type the audit program covers an evaluation of the technical documents of the measuring instruments. Die CAB keeps copies of technical documents.

• **Module H1:**
  In addition to conformity of the type the audit program covers the development of the measuring instruments.
Structure

- Introduction
- Comparison ISO 9001-certification / QS-approval
- Procedure QS-approval
- Contact
## Comparison ISO 9001-Certificate / QM-Approval

<table>
<thead>
<tr>
<th></th>
<th>ISO 9001-Certification</th>
<th>QS-Approval</th>
</tr>
</thead>
</table>
| **Purpose of Quality-System** | Compliance with customer requirements  
Decrease of failure costs  
Continuous improvement | Securing of the compliance of measuring instruments with legal requirements |
| **Purpose of certificate**     | Get customer confidence                                                               | Authorisation of conformity declaration                                 |
| **Scope of certificate**       | All processes and products of an organisation                                           | Measures of quality assurance for certain product categories  
(includes if necessary further organisations – i.E. subcontractors) |
| **Typical procedure**          | Application / audit / evaluation / decision / surveillance                           | Application / audit / evaluation / decision / surveillance               |
| **Validity period**            | 3 years                                                                                | 3 years                                                                   |
| **Surveillance period**        | Annual surveillance visits                                                            | Annual surveillance visits  
+ unexpected visits |

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Effect of an existing ISO 9001-Certificate for QS Approval

- An ISO 9001-Certificate does not replace the approval audit by the CAB
- ISO 9001-Certification is not a requirement for the approval of the quality system, but helpful (lower costs, audit of notified body is restricted to the „technical delta“)
- Some bodies offer ISO 9001-Certification in addition to the approval of the quality system (not PTB)

Useful WELMEC-Guide for Measuring Instrument Manufacturers:

**WELMEC Guide 8.6**
- Non-Automatic Weighing Instruments Directive 2014/31/EU - Presumption of Conformity of the Quality System of Manufacturers with Module D when EN ISO 9001:2015 is applied
- Measuring Instruments Directive 2014/32/EU - Presumption of Conformity of the Quality System of Manufacturers with Module D or H1 when EN ISO 9001:2015 is applied

[https://www.welmec.org/documents/guides/86/](https://www.welmec.org/documents/guides/86/)
• Introduction

• Comparison ISO 9001-certification / QS-approval ✓

• Procedure QS-approval

• Contact
## Procedure of the QS-Approval

<table>
<thead>
<tr>
<th>Step</th>
<th>Link/Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provision of information</td>
<td><a href="http://www.kzs.ptb.de">www.kzs.ptb.de</a></td>
</tr>
<tr>
<td>Application</td>
<td>Application form</td>
</tr>
<tr>
<td>Order confirmation</td>
<td>AGB + AZB of PTB</td>
</tr>
<tr>
<td>Nomination of the audit team</td>
<td>Action plan</td>
</tr>
<tr>
<td>Stage 1 Audit</td>
<td>Audit report(s)</td>
</tr>
<tr>
<td>Stage 2 Audit</td>
<td>Certificate</td>
</tr>
<tr>
<td>Evaluation of the quality system</td>
<td>Database MICert</td>
</tr>
<tr>
<td>Review of the report and certification decision</td>
<td>Certificate Revision</td>
</tr>
<tr>
<td>Updating the certificates database</td>
<td>Annual surveillance visits + spot check, where appropriate</td>
</tr>
<tr>
<td>Evaluation of notifications on changes of the quality system</td>
<td>Reassessment  (after 3 years)</td>
</tr>
</tbody>
</table>
Application documents which have to be submitted

- Filled and signed application form + list of preliminary questions
- Acceptation of the General Terms and Conditions of Certification of the PTB
- Copies of existing QM-Certificates, audit-reports etc. relevant to the QS-approval (e.g. ISO 9001 certificates, accreditation certificates)
- List of the measuring instrument types which are designated for the Conformity Declaration with regard to the quality system approval applied
- Module D: Copies of type-examination-certificates (unless not issued by PTB)
  Module D1: Technical documents of the measuring instrument types (→ audit team)
- Quality plans for several measuring instrument types, (i.e. short description of the key elements of production to make sure that the requirements of the MID will be met, e.g. quality system approval of suppliers, 100% final inspection including calibration, justification and sealing or placing into operation on site by own service technicians)
- Quality Management Manual of the company (if existing)
- List of all QS-documents relevant to the quality system approval (→ audit team)

  All documents have to be submitted in German or English !!!

Further documents will be requested by the audit team during the approval procedure
### QS-Approval Certificate

#### Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin

<table>
<thead>
<tr>
<th>Seite 2 des QS-Anerkennungszertifikats Nr. DE-M-AQ-PTBXXX, Revision xx, vom TT.MM.JJJJ</th>
<th>Seite 3 des QS-Approval Certificates</th>
<th>vom TT.MM.JJJJ</th>
</tr>
</thead>
</table>

#### Zertifikatsgeschichte

**Ausgabe** | **Datum** | **Änderungen**
---|---|---
DE-M-AQ-PTBXXX, Revision 00 | TT.MM.JJJJ | Erstellungs- und Initialzertifikat
DE-M-AQ-PTBXXX, Revision 01 | TT.MM.JJJJ |

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**Gültigkeitsbereich**

Die Konformitätsbewertungspflicht der Physikalisch-Technischen Bundesanstalt (PTB) beschränkt sich mit diesem Zertifikat, dass das Qualitätssicherungssystem in dem in diesem Zertifikat genannten Gültigkeitsbereich den folgenden Anforderungen entspricht.

By means of this certificate, the Conformity Assessment Body of the Physikalisch-Technische Bundesanstalt (PTB) certifies that the Quality System complies with the scope of validity specified in this certificate.

- **Anlage A**
  - **Modul D der Mess- und Eichverordnung vom 11.12.2014** (BGBl. I S. 2015), Abs. 3.2 u. 3.3
  - **Annex D**
    - **Annex D.1** der Mess- und Eichverordnung vom 11.12.2014 (BGBl. I S. 2015), Abs. 3.2 u. 3.3
  - **Annex D.2** der Mess- und Eichverordnung vom 11.12.2014 (BGBl. I S. 2015), Abs. 3.2 u. 3.3

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**Standorte und Gerätearten**

<table>
<thead>
<tr>
<th>Standort 1:</th>
<th><strong>(Standort1)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Messgerätearten</strong></td>
<td><strong>(Messgerät1)</strong></td>
</tr>
<tr>
<td><strong>Von Messgeräten</strong></td>
<td><strong>(VonMessgerät)</strong></td>
</tr>
</tbody>
</table>

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**Physikalisch-Technische Bundesanstalt**

**Nationale Metrologieinstitut**

**Adresse: P.O. Box 10 05 63, 38116 Braunschweig**

**DEUTSCHLAND / GERMANY**
Sites listed in the QS approval certificate

Sites documented in the certificate:

- Site where the manufacturer operates the management system in which hosts the quality system is incorporated ("headquarter", "central office"),
- Sites which are responsible for the final inspection of the measuring instruments ("final inspection sites")

Sites to be audited:

- All sites where quality assurance measures are implemented, which are necessary to ensure conformity of the measuring instruments with corresponding requirements.
- That may include suppliers or service partners.
List of measuring instrument types

<table>
<thead>
<tr>
<th>Typbezeichnung</th>
<th>Gerätetyp</th>
<th>Nr. der BPB / Bauartzulassung</th>
<th>Fertigungsstandort</th>
<th>Bemerkungen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type designation</td>
<td>Device type</td>
<td>No. of TEC / Type approval</td>
<td>Production site</td>
<td>Remarks</td>
</tr>
</tbody>
</table>

1. Messgeräte, für die der o.g. Hersteller die Konformität erklärt:
   Measuring instruments for which the above-mentioned manufacturer declares conformity:

2. Messgeräte, die an Kunden geliefert werden, die selbst die Konformität erklären:
   Measuring instruments which are supplied to customers who declare conformity themselves:

* Baumusterprüfbescheinigung (BPB) ** Innerstaatliche Bauartzulassung im Rahmen der Übergangsregelung nach § 62 (2) MessEG
  * Type-examination Certificate (TEC) ** National Type Approval within the framework of the transitional provision according to Section 62 (2) MessEG

Änderungen sind mitteilungspflichtig. Any changes have to be advised to PTB.
Audit-team for quality system assessment

Audit-team has to provide as follows:

- Well-founded knowledge on legal metrology
- Knowledge in quality management (auditor training)
- Expertise in corresponding measuring instruments category

Typical audit team:

Lead-Auditor

Technical Expert

Both registered in the list of auditors of PTB

The conformity assessment body of PTB is equipped with competent auditors and experts from the German verification authorities, from the technical PTB divisions and from other CABs.
Estimated charges (non-binding experience values)

Computation of fees according to effort and the work performed
- Basis: Regulations Governing the Charges for Services Supplied by PTB
- ca. 1.200 €/day/person * plus travel expenses (* will be increased soon)

Effort depends on
- Scope of the measuring instruments category
- Complexity of development-/ manufacturing process
- Number of locations and potential contractual partners to be taking into account
- Potential additional labour (i.e. translations, additional audits)

Typical effort for the initial approval
(Module D, 1 instrument category, 1 location, German language, ISO 9001-Certificate present)
- Stage 1 Audit:
  Lead Auditor: ½-1 day on location + travel time, ½ day pre-/post processing
- Stage 2 Audit:
  Lead Auditor: 1-2 days on location + travel time, 1-2 days pre-/post processing
  1 Expert: 1-2 days on location + travel time, 1-2 days pre-/post processing
- Certification Body: 1 day
Changes on an approved QS-System to be notified

Examples for notifiable Changes:

- Relocation or extension of sites
- Change of a subcontractor for metrological relevant components
- Change of testing methods in final inspection of the production
- Basic changes in production process
- Lapse of ISO 9001-Certification
- Add new measuring instrument types on the scope of quality system approval
- Start of insolvency proceedings

-> notification to audit team
-> review by the audit team
-> potential changes of QS-Approval certificate or its annex
Structure

- Introduction
- Comparison ISO 9001-certification / QS-approval
- Procedure QS-approval
- Contact
Structure of PTB Conformity Assessment Body

PTB-CAB

Advisory Board

Management of PTB Conformity Assessment Body

Head CAB
R. Schwartz (PTB VP)

Office CAB
H. Stolz

Certification Council

Sector 1
Explosion Protection and Shooting Devices

- Dr. F. Lienesch
- Certifiers
- Evaluators
- Checkers
- Inspectors
- Auditors and Experts

Sector 2
Non automatic weighing instruments and OIML-Certifications

- Dr. D Knopf
- Certifiers
- Evaluators
- Checkers
- Inspectors
- Auditors and Experts

Sector 3
Measuring Instruments Directive

- Dr. H. Stolz
- Certifiers
- Evaluators
- Checkers
- Inspectors
- Auditors and Experts

Sector 4
National regulated measuring instruments

- F. Renner
- Certifiers
- Evaluators
- Checkers
- Inspectors
- Auditors and Experts

Sector 5
Radiation Protection

- Dr. A. Roettger
- Certifiers
- Evaluators
- Checkers
- Inspectors

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### Contact experts (modules B or G)

#### Technical questions concerning modules B or G:

<table>
<thead>
<tr>
<th>Instrument Type</th>
<th>Expert</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length and area measuring instruments</td>
<td>Ingo Lohse</td>
<td>Tel. +49 531/592-5350</td>
</tr>
<tr>
<td>Measuring instruments for liquids</td>
<td>Michael Rinker</td>
<td>Tel. +49 531/592-1380</td>
</tr>
<tr>
<td>Measuring instruments for gas</td>
<td>Rainer Kramer</td>
<td>Tel. +49 531/592-1330</td>
</tr>
<tr>
<td>Measuring instruments for thermal energy</td>
<td>Jürgen Rose</td>
<td>Tel. +49 30/3481-7250</td>
</tr>
<tr>
<td>Measuring instruments for electrical energy</td>
<td>Christoph Leicht</td>
<td>Tel. +49 531/592-2340</td>
</tr>
<tr>
<td>Measuring Instruments for liquids</td>
<td>Oliver Mack</td>
<td>Tel. +49 531/592-1143</td>
</tr>
<tr>
<td>Measuring instruments of the grading of cereals and oilseeds</td>
<td>Regina Klüß</td>
<td>Tel. +49 531/592-3337</td>
</tr>
<tr>
<td>Densitymeters and contentmeters</td>
<td>Jürgen Rauch</td>
<td>Tel. +49 531/592-3141</td>
</tr>
<tr>
<td>Measuring instruments for temperature</td>
<td>Steffen Rudtsch</td>
<td>Tel. +49 30/3481-7650</td>
</tr>
<tr>
<td>Pressure gauges</td>
<td>Wladimir Sabuga</td>
<td>Tel. +49 531/592-3230</td>
</tr>
<tr>
<td>Measuring Instruments for traffic control</td>
<td>Frank Märtens</td>
<td>Tel. +49 531/592-1633</td>
</tr>
<tr>
<td>Exhaust gas analysers</td>
<td>Sonja Pratzler</td>
<td>Tel. +49 531/592-3215</td>
</tr>
<tr>
<td>Measuring devices for diary examinations</td>
<td>Regina Klüß</td>
<td>Tel. +49 531/592-3337</td>
</tr>
<tr>
<td>Taximeters</td>
<td>Helga Grohne</td>
<td>Tel. +49 531/592-1632</td>
</tr>
<tr>
<td>Sound level meters</td>
<td>Ingolf Bork</td>
<td>Tel. +49 531/592-1531</td>
</tr>
<tr>
<td>Measuring Instruments for Radiation Protection</td>
<td>Oliver Hupe</td>
<td>Tel. +49 531/592-6310</td>
</tr>
<tr>
<td>Software in Measuring Instruments</td>
<td>Marko Esche</td>
<td>Tel. +49 30/3481-7975</td>
</tr>
</tbody>
</table>

#### General questions concerning modules B or G:

<table>
<thead>
<tr>
<th>Question Type</th>
<th>Expert</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non Automatic Weighing Instruments</td>
<td>Dorothea Knopf</td>
<td>Tel. +49 531/592-1100</td>
</tr>
<tr>
<td>OIML-Certifications</td>
<td>Dorothea Knopf</td>
<td>Tel. +49 531/592-1100</td>
</tr>
<tr>
<td>Measuring Instruments Directive</td>
<td>Harry Stolz</td>
<td>Tel. +49 531/592-9220</td>
</tr>
<tr>
<td>Domestic regulated Measuring Instruments</td>
<td>Franziska Renner</td>
<td>Tel. +49 531/592-8312</td>
</tr>
</tbody>
</table>
Contact experts (modules D or D1)

PTB working group 9.22:

Markus Urner,
Coordinator QS-approval measuring instrument manufacturers
Tel. +49 531/592-8321, E-Mail: markus.urner@ptb.de

Anna Pfaff,
Coordinator QS-approval weighing instrument manufacturers
Tel. +49 531/592-8322, E-Mail: anna.pfaff@ptb.de

General questions

General questions on legal metrology in Germany:
PTB Working Group Legal Metrology (9.21)
Dr. Mäuselein sascha.maeuselein@ptb.de

General questions on conformity assessment services of PTB:
Office PTB-CAB (9.22)
Dr. Stolz harry.stolz@ptb.de

Other CABs:
Domestic:
http://www.adkbs.ptb.de/

European:
http://ec.europa.eu/growth/tools-databases/nando/
Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin
Conformity Assessment Body
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