mdc	**Structure of Technical Documentation (in vitro diagnostic devices)**	002/01.2023 ID: 5436

The following structure is based on the European Regulation 2017/746 (IVDR) but is also applicable for technical files according European Directive 98/79/EU (IVDD).

1. Device description and specifications

1.1. General description of the device and variants thereof and description of the intended use

1.1.1. General product description, if applicable, overview of the entire system. A listing of the product and trade names and the name and address of the manufacturer, if applicable, name and address of the European Representative

1.1.2. Overview of devices and device groups and device variants including UDI-DI (as soon as legally binding). A report on the implementation of Basis-UDI-DI considering all device variants described in the technical file including unequivocally described software versions (if applicable). Until the complete implementation of all UDI requirements, at least a clear presentation of all device variants (sizes, shapes, coatings etc.) and trading names is required.

1.1.3. Intended Use
A description of the test procedure, the analyte and the applicable sample materials as well as the intended patient groups. A declaration whether the assay shows special features like near-patient testing, is a test for lay use or a companion diagnostics including the description of the respective drug.

1.1.4. Description of the test principle or the functional principle
An explanation of the functional principle in a way that is comprehensible for third parties, which includes, if applicable, the interactions of components and accessories, as well as a description of the essential functional elements of the device (e.g. parts / components, recipes, composition including software) and of the test procedure and of the result evaluation.

1.1.5. Categorization and classification
Reason why it is an in vitro diagnostic device.
Presentation of the classification, the applied classification rules including the respective dash, reason for the classification, EMDN classification (if applicable).

1.1.6. Declaration of conformity
Declaration of conformity according Annex IV IVDR *or according IVDD (with regard to the EK-MED-decision 3.9 A4)*
In case of an initial certification (e.g. IVDR) the draft of the declaration of conformity has to be submitted.

1.1.7. Overview of all raw materials, components, packaging materials (list of parts / bill of materials)
Specifications of raw materials, parts, components as technical specifications, material specifications, dimensions, performance attributes, especially for integrated raw materials and materials with direct or direct contact to the human body also specifications for the packaging material (primary and secondary), if applicable certificates of analysis provided by the supplier, material certificates, test certificates.

1.1.8. Sampling and sample preparation
Description of the intended sampling procedure and sample treatment (e.g. storage, anticoagulants) as well as pretreatment of the sample (filtration, centrifugation, purification or extraction) for each sample material listed in the intended use.

1.1.9. Instruments of automated assays
Description of the principle of operation (analysis technique and handling), the hardware and software, and the use of the associated assays or assay characteristics, overview of the entire system.

1.1.10. Automated assays
Specification and description of the instrument to be used including the software, overview of the entire system.

1.1.11. Software
Description of the software to be used with the product including name and version, and details of the IT environment, description of the methodology for data evaluation (algorithm) if applicable, overview of the entire system.

1.1.12. Variants / configurations
Description of device variants (package sizes), of variants for defined distribution areas.

1.1.13. Accessories (Combination with other devices)
Description of accessories necessary for the correct accomplishment of the diagnostic procedure. Definition of materials and specifications of devices needed but not included in the device. Additionally, a description of the allowed combination of other devices and the interfaces.

1.2. Precursor and similar device generations

1.2.1. Overview of the previous generation(s) of the device produced by the manufacturer.

1.2.2. Overview of similar devices, available on the European or the international markets.

1.3. Summary of Safety and Performance (Class C and D devices, only!)
Draft or summarizing report according article 29 IVDR (SSP – Summary of Safety and Performance), except for devices for performance evaluation

1.4. *QM-System (only for IVDD)*
Presentation of the QM-System – typically by providing applicable certificates or alternatively by providing the QM documentation (e.g. QM manual). This is required only for certification according IVDD.

2. Labelling / Instructions for use

2.1. Labelling (primary packaging, single packaging, sales packaging and in case of special handling requirements transport packaging) in all languages accepted in the member states the device is intended to be sold.

2.2. Instructions for use in all languages accepted in the member states the device is intended to be sold.

3. Information on design and manufacturing

3.1. Design description

Description of the design process, the design phases (e.g. milestones) applied during the design of the device and a summarizing presentation of the results of each phase. Information on the institutions / facilities involved in the design process (e.g. outsourced design units, research units etc.).

3.2. Biological evaluation

Evaluation of whether there are risks to users, patients or third parties from harmful substances and residues of the product or its starting materials. Where appropriate, these substances must be described and, where necessary, tests must be carried out which are appropriate to the tissues exposed to these harmful substances and residues and the duration and frequency of exposure.

3.3. Description of the production

3.3.1. Understandable description of the production (e.g. processes, flow-charts, exemplary batch records…)

3.3.2. Address of all production facilities including the respective production steps

3.3.3. Information on special production processes and their validation (z. B. Coating processes, injection molding, soldering, glue, welding, lyophilisation, purification/extraction of manufacturing residues, etc.)

3.3.4. Information on controlled environments, in which production processes are conducted

3.4. Description of the quality control (QC)

Description of (e.g. procedures, flow-charts, test specifications, exemplary test records, …) quality controls (Incomming goods control, in process controls und final examinations) including acceptance criteria

3.5. Outsourced processes, subcontractors

3.5.1. Tabular overview of outsourced processes and name / address of the respective supplier / subcontractor

3.5.2. Records on the qualification of the subcontractors (e.g. certificates, proof of accreditation)

3.5.3. Quality assurance agreements (QAA) with subcontractors in case of outsourced production processes as well as in case of outsourced packaging and/or sterilization of sterile devices

4. General Safety and Performance Requirements

4.1. Systematic evidence for compliance with the general safety and performance requirements, preferentially as checklist including:

- Reason for applicability / non-applicability of a requirement
- Reference to applied common specifications, standards or parts of them (distinct reference to the applied version / issue),
- Reference to controlled documents and records as evidence for fulfilling the requirements,
- Evaluation whether requirements are fulfilled
- Approval by an authorized person (Date, Signature).

4.2. List of applied standards and common specifications (CS)

Current list of applied standards including version / issue status, if applicable, including the information on not applied parts of the standards. (According IVDR part of 4.1, explicitly required for certifications according 98/79/EU).

5. Risk-benefit analysis and risk management ()

Following parts of the currently valid, the whole life cycle covering risk management file have to be submitted:

5.1. Risk management plan

5.2. Risk analysis including risk mitigation measures

5.3. Risk management report including the assessment of residual risks and appraisal of the risk – benefit ratio

6. Verification and validation of the device (performance)

- Performance Evaluation Plan (PEP)

  Plan including parameters for acceptability of benefit-risk ratio, and for analytical and clinical performance, overview of development phases.
- Scientific validity

  Scientific validity report including literature review.

For each of the following items a summarizing assessment of the performance examination or a justification for the non-applicability must be submitted. If test results are referenced, the respective test records must be submitted, too.

6.1. Analytical performance

For the verification of the analytical performance the following has to be submitted:

6.1.1. Types of specimens

Description of all kinds of specimens included in the intended use (if applicable anticoagulants), criteria for sampling.

6.1.2. Accuracy (as a result of precision and trueness)

Plan and report for Trueness (Bias), precision (repeatability and reproducibility).

6.1.3. Analytical sensitivity, analytical specificity

Plan and report for Limit of Detection and Limit of Quantitation, known relevant endogenous and exogenous interfering or cross reacting substances.

6.1.4. Meteorological traceability of calibrators and controls (plan and report)

6.1.5. Measurement range and linearity (plan and report)

6.1.6. Threshold values / cut-offs

Decription of the method used for definition of the cut-off(s), plan and report for validation of the cut-off(s).

6.1.7. Analytical performance report

6.2. Clinical performance evaluation
- **6.2.1.** Plan of the clinical performance evaluation
  Taking into account the existing knowledge (e.g. predicate devices), literature, study plans, institutional review board.
- **6.2.2.** Literature search
  Plan including selection criteria, assessed data bases, exclusion criteria, assessment and summarizing report.
- **6.2.3.** Clinical performance data
  Plan(s) and report(s) on diagnostic sensitivity and specificity, positive and negative predictive value, likelihood ratio.
- **6.2.4.** User studies
  In case of devices for lay use: description of the study plan(s), the study and the results
- **6.2.5.** Clinical performance report
  Clinical performance evaluation report includes the results of the literature research, the results of the conducted studies comprising all data intended to be shown in the package insert.

6.3. Stability including expiry
Records proving that the devices fulfil the described performance specifications until expiry.
Results of stability testing and assessment for the following aspects:
- **6.3.1.** Storage stability (accelerated aging (e.g. Arrhenius equation) and real time data)
- **6.3.2.** In Use Stability
- **6.3.3.** Transport stability

6.4. Software Verification and Validation (if applicable)
- **6.4.1.** Description of the software life cycle (e.g. according EN 62304)
- **6.4.2.** Description of the software design (e.g. according EN 62304, EN 62366)
- **6.4.3.** Validation of the software, as used in the final device: e.g. summaries of verification, validation and usability tests (in-house, simulated or real life user environment)

6.5. In special cases additional information on microbiological requirements if applicable sterilization. Investigations and records on following aspects:
- **6.5.1.** Description of the environment for production, purification and packaging (if applicable the validation of environmental production conditions or purification processes should be shown in Chapter 3.2):
  - Description and Validation of the packaging process
  - Bioburden (initial microbial load) before sterilization
  - Pyrogen/Endotoxins
  - Description of the sterilization process and validation of the sterilization (if applicable)
- **6.5.2.** Devices including material of human, animal or microbial origin (if applicable)
  - Information on origin, processing, preservation, tests and handling
  - Evidence on depletion / removal of transmittable substances (inactivation, excision)
  - Reason why inactivation / excision is not conducted
- **6.5.3.** Measurement function (if applicable)
  - Plan and overview of conducted tests
  - Test protocols and records on conducted tests
  - Assessment of data and test results on accuracy
- **6.5.4.** Device is to be connected to other equipment in order to operate as intended
  Description of combinatory use (if connected to other equipment to operate as intended)
  - Proof of conformity to general safety and performance requirements (Annex I)
  - Plans and reports on combinatorial use (if applicable on analytical performance data).

6.6. Performance Evaluation Report (PER)
Summary report on the scientific validity, analytical and clinical performance, including an assessment of whether the intended clinical benefit and safety of the product is achieved.

7. Technical documentation on post market surveillance
- **7.1.** Plan on post market surveillance (PMS-Plan)according article 79
- **7.2.** Post market surveillance report according article 81 respectively post-marketing surveillance report according to Article 80 (PMS-Report, both only for IVDR)
- **7.3.** Post-market performance follow-up plan (PMPF plan)
  Evaluation plan on the post-market performance follow up taking into account the results of the performance evaluation or a respective reason why a systematic surveillance after placement on the market is not necessary.
  - PMPF Plan
  - if no systematic post-market performance follow-up is required, a justification
- **7.4.** Post-market performance follow-up report (PMPF report)

8. External reports
Chapter reserved for documentation on consultancy procedures (medicinal products authorities, reference laboratories or expert panel)