WHITEPAPER

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Technical Documentation Best Practices for EU MDR

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Manufacturers shall ensure the conformity of medical devices being placed on the European market in accordance with the applicable requirements of (EU) 2017/745 Medical Devices Regulation (MDR). Depending on the classification of the device and the conformity assessment route chosen, one or more Technical Documentation(s) need to be assessed by a Notified Body. This whitepaper is aligned tothe requirements of EU Medical Devices Regulation (EU MDR), described in detail in Annexes II and III.

Practical points consideration to avoid delays and improve the submission:

- Comprehensive reports and data should be included. Abbreviated or partial test reports are not considered acceptable
- Verification reports with subsequent amendments or revisions as the device was changed are not acceptable.
- The technical documentation should document how the manufacturer ensures compliance to every applicable MDR Annex I GSPR. Note that, per section, a simple collection of test/verification reports does not fulfil this requirement
- Ensure to keep uniform details when duplicate information is required
- Ensure the data in the technical documentation is consistent with the data provided in the respective application forms
- Justification must be s be provided or accompanied where there are deficiencies

Ideal structure of Technical Documentation

1. Device description and specification details should include:

- Product/trade name, general description of the device, its intended purpose and intended users
- Applicable EMDN codes, details on the device's intended use. The general device description design, packaging, sterilisation, or other characteristics of the device. the intended purpose of different design features and intended users of the device
- The Basic UDI-DI, or clear identification by means of product code, catalogue number or other unambiguous reference allowing traceability
- The intended patient population and medical conditions to be diagnosed, treated and/or monitored and other considerations such as patient selection criteria, indications, contra-indications, warnings
- The device's operating principles and mode of action, with any relevant scientific support
- he rationale for the qualification of the product as a device
- The risk class of the device and the justification for the classification rule as per Annex VIII
- Description/specification of any novel features/novel characteristic of medical device must be provided supported by scientific data or may necessitate a clinical investigation
- Description of the accessories for a device, other devices and other products that are not evices, which are intended to be used in combination with it
- Description or comprehensive of the various configurations/variants of the device
- A general description of the key functional components with labelled pictorial representations
- Description of the Raw materials used in important functional components and those coming into contact with the body directly or indirectly, like when body fluids are circulated outside the body
- Technical Specifications, such as the device's features, dimensions, and performance characteristics, as well as any variations, combinations, and accessories, should be made available to the customer

2. Reference to previous and similar generations of the device:

- Description of the device's Previous generation or generations, if any have been developed by the manufacturer and which are still in existence
- List of similar devices that have been identified and are now being sold on Union or worldwide markets, where such devices exist
- Information to be supplied by manufacturer includes Declaration of Conformity, Labelling, IFU, Implant Card, Surgical Technique brochure etc.

3. Design & Manufacturing Information

Provide Information to allow the design stages applied to the device like Design stages/phases are typically closed by phase reviews with meeting minutes and a report. The Standard operating procedures (SOPs) for design and development are not required; these typically do not apply to the specific device and will not provide understanding on the design stages of the particular device. Detailed description of manufacturing processes shall be included.

The manufacturer should include validation protocols/plans/reports, Master Validation Plan and Validation Reports for processes that are validated and are considered critical for the safety and performance of the device.

In case if the device is required to be installed and/or commission at the user location, information on tests to be carried out as a part of the installation and commissioning of the device should be provided and If information is not available in English, the Manufacturer should either provide translations or provide supplementary summary reports with translations of relevant information/sections. In cases where the information/reports are data heavy (or mainly graphical in nature) with very few words, the Manufacturer may annotate English translations of relevant words within the reports.

Sites and Subcontractors

The manufacturer should provide the following documentation at a minimum:

- The name and address of any critical subcontractors, evidence of qualification Copies of critical subcontractor ISO 13485 certificates or other relevant certificates based on the product / service they provide
- Identification of subject medical device design, manufacturing process sites and Quality Assurance agreements with critical subcontractors
- Specify the site(s) involved in the design / manufacturing of the subject medical device if multisite companies are present

4. General Safety & Performance Requirements (GSPRs)

The manufacturer should provide documentation in the form of a checklist/or other document that includes the following:

- The method or methods used to demonstrate conformity with each applicable GSPR
- Harmonised standards, Common Specification (CS), or other solutions applied
- The precise identity of the controlled documents offering evidence of conformity with each harmonised standard, CS, or other method applied to demonstrate conformity with the GSPR
- Approval by the responsible person (date, signature)

5. Benefit Risk Analysis and Risk Management

EU MDR recommends to include risk management process based on EN ISO 14971. Risk management should be understood as a continuous iterative process throughout the entire lifecycle of a device, requiring regular systematic updating.

Risk management plan

- The risk management plan associated with the device should be provided
- Provide evidence that the risk management team comprises appropriately qualified persons, including assignment of a clinical expert

Risk analysis / risk control measures

- The benefit-risk analysis. The solutions adopted and the results of the risk management along with evidence given that a safety concept
- Design risk assessment: documented risk assessment for the design aspects of the device
- Production/process risk assessment: documented risk assessment for the production/manufacturing process aspects of the device
- Clinical/Application/Product risk assessment: documented risk assessment for the clinical usage/application aspects of the device

Risk management report

- The evaluation of any residual risk(s) acceptability
- The evaluation of the overall residual risk acceptability
- The evaluation of the benefit-risk ratio

A statement should be provided that the device, when used within the intended purpose, constitutes acceptable risks when weighed against the benefits to the patient and is compatible with a high level of protection of health and safety, considering the generally acknowledged state of the art.

6. Product Verification and Validation

In general, the documentation should contain the results and critical evaluation of all verifications and validation tests and/or studies undertaken. For each test performed, the resulting data should be critically analysed and linked towards addressing specific GSPR's and/or related risk control measures.

Biocompatibility

- Standards and references applied for the medical device related to biological evaluation
- Formulation, description, manufacturing and use of the medical device
- Categorization of the medical device: nature and duration of contact
- Identification of potential biological risks of the medical device / possible biological hazards
- Physical and chemical information for biological risk analysis / medical device characterization. Thorough characterization of the materials according to ISO 10993-1
- Justification on the need or not to perform biological evaluation tests
- Overall assessment to show the management of all potential hazards at an acceptable level and the benefit to health from using the medical device as intended by the manufacturer, against likely risks of damage or sickness from such usage

Software & Software Validation (Including Cyber Security)

A clear statement and documented rationale as to why the product is a Software as a Medical Device (SaMD) is required. Based on the standard used for compliance, a standards compliance checklist to the requirements based on the software's risk category is recommended. Direct references to where in the technical file the evidence of meeting the requirements of the chosen standard is located should be present in any compliance checklist presented. The software standards applied to the device should be identified in the technical documentation, provide evidence of consideration of all related harmonised and non-harmonised /SOTA software standards / guidance(s).

Across the notified bodies selected, the following common documented evidence is required at a minimum in the technical document.

- Software development plan
- Software requirements analysis
- Software architectural design
- Software detailed design
- Software detailed design
- Verification and Validation
- Software release
- Software risk assessment
- Cyber security

Electrical Safety and Electromagnetic Compatibility (EMC)

This section is only relevant for electrical medical device(s). The manufacturer should provide the following documentation: Electrical safety test protocols & Electrical safety test reports for electrical safety testing.

Packaging, Stability and Shelf-Life

The following information should be provided:

- Description of packaging types used - primary, secondary etc.
- Claimed shelf life and evidence, i.e. written evidence and justification with example of the label.
- Assessment of changes within packaging
- Storage conditions, standards used for testing and If packaging/stability/shelf-life is being leveraged from another product, a detailed rationale should be provided on why this is appropriate

Usability

Provide the protocols, data and results for usability studies. The following is expected when compliance to the relevant European standards (EN62366 and EN60601-1-6) is claimed.

Usability engineering file: Use specification, Identification of user interface characteristics related to safety and potential use errors, Identification of known and foreseeable hazards and hazardous situations, Identification and description of hazard-related use scenarios, Selection of the hazard-related use scenarios for summative evaluation, User interface specification, User interface evaluation plan, User interface design and implementation, Formative evaluation and Summative evaluation. The usability documentation should be in line with the risk management process.

Devices Incorporating Medicinal and Biological Materials

Drug/Device Combination Products

Devices which incorporate medicinal substances may be subject to requirements of additional European Directives / Regulations. Additional review resources may be required, including external independent reviewers and/or Competent Authority consultation and/or a European Agency for the Evaluation of Medicinal Products (EMA). The data on Applicability of device including a medicinal substance(s)must be provided.

Recommendations: Explanation for classification of the product as device incorporating as an integral part an ancillary medicinal substance, Background related to substance, Presentation of the substance (quantitative and qualitative composition), Critical appraisal of the results of the risk assessment, Clinical Data (CER), The usefulness of the ancillary medicinal substance incorporated in the medical device should be addressed by clinical evaluation or by cross-reference to other sections of the dossier, as applicable. And CTD including Modules 1-5.

Device incorporating Human or Animal or Biological Origin Matter

Devices which incorporate human-derived substances or animal-derived substances or biological origin substance may be subject to requirements of additional European Directives / Regulations. Additional review resources may be required, including external independent reviewers and/or Competent Authority consultation and/or a European Agency for the Evaluation of Medicinal Products (EMA).

Substances absorbed or locally dispersed

MDR Annex I, GSPR 12.2 requires for devices that are composed of such substances to consider the relevant requirements of Directive 2001/83/EC in relation to absorption, distribution, metabolism, excretion (commonly referred to as ADME profile), local tolerance, toxicity, interaction with other devices, medicinal products or other substances and potential for adverse reactions.

Hazardous substances, CMR, endocrine disrupting substances

Devices containing CMR or endocrine-disrupting substances describe specific requirements for devices that contain substances which are carcinogenic, mutagenic or toxic to reproduction and substances having endocrine-disrupting properties.

Sterilisation

Product supplied Sterile – Sterilisation

- Confirm the types of standard and claimed SAL used for the selected sterilisation method
- Name and address of the sterilisation facility and relevant documentation – if outsourced
- Technical agreement with sub-contractors – device manufacturer and sterilisation company.
- QMS ISO certificate confirming the sterilisation facility complies to perform sterilisation for relevant standard
- If performed in-house – IQ, OQ, PQ data, Sterilisation parameters, Example of IFU and Label
- Sterilisation validation and revalidation

7. Clinical Evaluation (Includes SSCP labelling)

The following documents should be provided for the clinical evaluation assessment and when not provided a suitable justification should be provided for their absence.

- Clinical development strategy of the device
- Clinical Development Plan for the device
- Clinical Evaluation Plan for the device
- Clinical Evaluation Report for the device
- Post Market Clinical Follow Up (PMCF) Plan
- Post Market Clinical Follow Up (PMCF) Evaluation Report
- Summary of Safety and Clinical Performance (SSCP) Report

8. Post Market Surveillance

The submission should contain the following documentation on post-market surveillance:

- The post-market surveillance plan and Report
- Periodic safety update report, PMCF plan
- A copy of the Post Market Surveillance procedure and the procedures put in place to ensure compliance with the obligations resulting from the provisions on vigilance set out in Articles 87 to 92.

The manufacturer should also provide the following post market surveillance data for the last 5 years:

- Market History
- Worldwide and EU sales volumes
- Complaints data and trend analysis
- Vigilance data and trend analysis
- Data from clinical studies Modifications made and/or corrective actions taken

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