

Here is the generated checklist in Markdown format:

Identity and Purpose

IMP-07: Software-Hardware Differences

- Is the software used for training identical to the hardware used for verification? (YES/NO)
- Are there any differences that could impact inference model behavior and performance? (YES/NO)

IMP-08: Model Verification

- Has the applicant performed an evaluation of the inference model's performance based on test data? (YES/NO)
- Is the result of the model verification documented? (YES/NO)

IMP-09: Stability Verification

- Has the applicant verified the stability of the inference model? (YES/NO)
- Is the result of the stability verification documented? (YES/NO)

IMP-10: Robustness Verification

- Has the applicant verified the robustness of the inference model in adverse conditions? (YES/NO)
- Is the result of the robustness verification documented? (YES/NO)

IMP-11: Requirements-Based Verification

- Has the applicant performed requirements-based verification of the inference model's behavior when integrated into the AI/ML constituent? (YES/NO)
- Is the result of the verification documented? (YES/NO)

IMP-12: Verification Completion

- Has the applicant confirmed that AI/ML constituent verification activities are complete? (YES/NO)

Configuration Management

CM-01: Configuration Management Principles

- Are all configuration management principles applied to the AI/ML constituent lifecycle data? (YES/NO)
- Is versioning used for configuration items? (YES/NO)
- Is change control implemented for configuration changes? (YES/NO)

Quality Assurance

QA-01: Quality Assurance Principles

- Are quality assurance principles applied to the development of the AI-based system with the required independence level? (YES/NO)

Reuse Assessment

RU-01: Impact Assessment

- Has an impact assessment been performed for the reuse of a trained ML model before incorporating it into an AI/ML constituent? (YES/NO)
- Are all potential impacts considered in the assessment? (YES/NO)

RU-02: Functional Analysis

- Has a functional analysis been performed to confirm the adequacy of the COTS ML model to the requirements and architecture of the AI/ML constituent? (YES/NO)

RU-03: Unused Functions Analysis

- Has an analysis been performed to identify unused functions in the COTS ML model, and prepare for deactivation? (YES/NO)

Surrogate Model

SU-01: Reference Model Accuracy

- Is the accuracy of the reference model captured and documented to support verification of the surrogate model's accuracy? (YES/NO)

SU-02: Uncertainty Analysis

- Has an analysis been performed to identify additional sources of uncertainty linked with the use of a surrogate model, and mitigated as necessary? (YES/NO)

Explainability

EXP-01: Stakeholder Identification

- Have all stakeholders requiring explainability identified, including their roles, responsibilities, and expected expertise? (YES/NO)
- Are assumptions made about training, qualification, and skills documented? (YES/NO)

EXP-02: Explainability Needs

- Has the need for explainability been characterized for each stakeholder or group of stakeholders? (YES/NO)
- Is the specified AI explainability needs documented? (YES/NO)

EXP-03: Explainability Methods

- Are methods identified and documented at AI/ML item and/or output level to satisfy specified AI explainability needs? (YES/NO)

EXP-04: Confidence Level

- Has the ability been designed into the AI-based system to deliver an indication of the level of confidence in AI/ML constituent output based on actual measurements or uncertainty quantification? (YES/NO)

EXP-05: Input Monitoring

- Has the ability been designed into the AI-based system to monitor inputs are within specified operational boundaries? (YES/NO)
- Is input parameter range and distribution monitored? (YES/NO)

EXP-06: Output Monitoring

- Has the ability been designed into the AI-based system to monitor outputs are within specified operational performance boundaries? (YES/NO)

EXP-07: Confidence Level Monitoring

- Has the ability been designed into the AI-based system to monitor that AI/ML constituent outputs are within specified operational level of confidence? (YES/NO)