**3GPP TSG-SA5 Meeting #155 *S5-243098d2***

**Jeju, South Korea, 27 – 31 May 2024**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **28.105** | **CR** | **Input to Draft CR** | **rev** |  | **Current version:** | **18.3.0** |  |
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| *For* [*HE**LP*](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **x** | Radio Access Network | **x** | Core Network | **X** |

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| ***Title:*** | Input to draft CR Rel-18 TS 28.105 further clarifications into terminologies | | | | | | | | | |
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| ***Source to WG:*** | NEC, Intel, Ericsson?, Huawei?, Nokia?, China Mobile?, Samsung?, ZTE?, DT? | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | AIML\_MGT | | | | |  | ***Date:*** | | | 2024-05-10 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | *Rel-18* |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
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| ***Reason for change:*** | | Defining a concise and consolidated set of AI/ML related terms is vital element of SA5 potential input to the E2E framework activity in the 3GPP SA.  Current specifications refer to the inference function using the pre-fix “AI/ML” while for the model the prefix ML only is used. This raised many questions by readers of SA5 spec including other 3GPP WG delegates.  Metadata is mentioned in the definition of ML model as a constituent element of the ML model without explaining what information are included under the metadata element.  Clarification is needed for ML model training.  ML training term is kind of redundant and is implicit by the term ML model algorithm training definition.  Definition of the term “AI/ML inference emulation” and “ML model deployment” are missing from the terms list. | | | | | | | | |
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| ***Summary of change:*** | | * Added further clarification to describe the metadata element of the ML model. * ML model and ML model algorithim definitions have been merged. * Clarification is added to the ML model training term * Deleted ML training. * Added clarification note to describe the prefix of AI/ML for the inference function. * Added the definition of the term AI/ML inference emulation and deployment. | | | | | | | | |
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| ***Consequences if not approved:*** | | Unnclear, duplicated and/or mising term definitions may lead to misunderstanding and unnecessary speculations of the specifications potentially leading to implementation problems. | | | | | | | | |
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| ***Clauses affected:*** | | 3.1 | | | | | | | | |
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|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **x** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
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| ***Other comments:*** | | This input to draft CR is using the latest baseline Rel-18 TS28.105 v18.3.0 with change marks. | | | | | | | | |
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| ***This CR's revision history:*** | |  | | | | | | | | |

***1st change***

# 3 Definitions of terms, symbols and abbreviations

## 3.1 Terms

For the purposes of the present document, the terms given in 3GPP TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [1].

**ML model:** a manageable representation of an ML model algorithm.

NOTE 1: an ML model algorithm is a mathematical algorithm which is trained using a suitable set of training data.

NOTE 2: an ML model algorithm is a mathematical algorithm through which running a set of input data can generate a set of inference output.

NOTE 3: ML Model may be associated with Metadata in an ML model package. Metadata may include e.g. information related to the trained model, and applicable runtime context.

NOTE 4: algorithm is proprietary and not in the scope for standardization and therefore not treated in this specification.

**ML model training:** a process performed by an ML training function to take training data, run it through an ML model algorithm, derive the associated loss and adjust the parameterization of that ML model iteratively based on the computed loss and generate the trained ML model.

**ML model initial training:** a process of training of an initial version of an ML model.

**ML model re-training:** a process of training a previous version of ML model and generating a new version.

NOTE 5: a new version of a trained ML model supports the same type of inference as the previous version of the ML model, i.e., the data type of inference input and data type of inference output remain unchanged between the two versions of the ML model, but parameter values might be different for the re-trained model.

**ML model joint training:** the process of training a group of ML models.

**ML training function**: a logical function with ML model training capabilities.

**ML testing:** the process of testing an ML model using testing data.

**ML testing function**: a logical function with ML model testing capabilities.

**AI/ML inference:** a process of running a set of input data through a trained ML model to produce set of output data, such as predictions.

NOTE 6: the inference represents the process to realize the AI capabilities by utilizing a trained ML model and some other components if needed, hence the AI/ML prefix is used when referring to inference as compared to training and testing.

**AI/ML inference function**: a logical function that employs trained ML model(s) to conduct inference.

**AI/ML inference emulation**: running the inference process of an ML model in an emulation environment to evaluate performance, debug, test, and optimize the model before deployment into the real-world production scenarios.

**ML model deployment:** a process of making a trained ML model available for use at the target inference function.

***End of changes***