**3GPP TSG- Meeting #**

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| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
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|  |  | **CR** |  | **rev** |  | **Current version:** |  |  |
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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 |  | Radio Access Network | **x** | Core Network |  |

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| ***Title:***  |  |
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| ***Source to WG:*** |  |
| ***Source to TSG:*** |  |
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| ***Work item code:*** |  |  | ***Date:*** |  |
|  |  |  |  |  |
| ***Category:*** |  |  | ***Release:*** |  |
|  | *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 canbe 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-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19) Rel-20 (Release 20)* |
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| ***Reason for change:*** | Introduced definitions are not applicable to performance/conformace testing in RAN4. |
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| ***Summary of change:*** | Added a note to the definitions of the following terms:* AI/ML model testing
* AI/ML model validation
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| ***Consequences if not approved:*** | The definitions of the terms can be considred generic and one can confuse those with conformace testing practices. |
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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 CR's revision history:*** | Revision of R4-2414308. |

## 3.1 Terms

For the purposes of the present document, the terms given in 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 TR 21.905 [1].

**AI/ML-enabled Feature:** refers to a Feature where AI/ML may be used.

**AI/ML Model:** A data driven algorithm that applies AI/ML techniques to generate a set of outputs based on a set of inputs.

**AI/ML model delivery:** A generic term referring to delivery of an AI/ML model from one entity to another entity in any manner. Note: An entity could mean a network node/function (e.g., gNB, LMF, etc.), UE, proprietary server, etc.

**AI/ML model Inference:**  A process of using a trained AI/ML model to produce a set of outputs based on a set of inputs.

**AI/ML model testing:** A subprocess of training, to evaluate the performance of a final AI/ML model using a dataset different from one used for model training and validation. Differently from AI/ML model validation, testing does not assume subsequent tuning of the model.
NOTE: the term is not applicable for performance/conformance testing.

**AI/ML model training:** A process to train an AI/ML Model [by learning the input/output relationship] in a data driven manner and obtain the trained AI/ML Model for inference.

**AI/ML model transfer:** Delivery of an AI/ML model over the air interface in a manner that is not transparent to 3GPP signalling, either parameters of a model structure known at the receiving end or a new model with parameters. Delivery may contain a full model or a partial model.

**AI/ML model validation:** A subprocess of training, to evaluate the quality of an AI/ML model using a dataset different from one used for model training, that helps selecting model parameters that generalize beyond the dataset used for model training.
NOTE: the term is not applicable for performance/conformance testing.

**Data collection:** A process of collecting data by the network nodes, management entity, or UE for the purpose of AI/ML model training, data analytics and inference.

**Federated learning / federated training:** A machine learning technique that trains an AI/ML model across multiple decentralized edge nodes (e.g., UEs, gNBs) each performing local model training using local data samples. The technique requires multiple interactions of the model, but no exchange of local data samples.

**Functionality identification:** A process/method of identifying an AI/ML functionality for the common understanding between the NW and the UE. Note: Information regarding the AI/ML functionality may be shared during functionality identification. Where AI/ML functionality resides depends on the specific use cases and sub use cases.

**Management instruction:** Information needed to ensure proper inference operation. This information may include selection/(de)activation/switching of AI/ML models or AI/ML functionalities, fallback to non-AI/ML operation, etc.

**Model activation:** enable an AI/ML model for a specific AI/ML-enabled feature.

**Model deactivation:** disable an AI/ML model for a specific AI/ML-enabled feature.

**Model download:** Model transfer from the network to UE.

**Model identification:** A process/method of identifying an AI/ML model for the common understanding between the NW and the UE. Note: The process/method of model identification may or may not be applicable. Note: Information regarding the AI/ML model may be shared during model identification.

**Model monitoring:** A procedure that monitors the inference performance of the AI/ML model.

**Model parameter update:** Process of updating the model parameters of a model.

**Model selection:** The process of selecting an AI/ML model for activation among multiple models for the same AI/ML enabled feature. Note: Model selection may or may not be carried out simultaneously with model activation.

**Model switching:** Deactivating a currently active AI/ML model and activating a different AI/ML model for a specific AI/ML-enabled feature.

**Model update:** Process of updating the model parameters and/or model structure of a model.

**Model upload:** Model transfer from UE to the network.

**Network-side (AI/ML) model:** An AI/ML Model whose inference is performed entirely at the network.

**Offline field data:** The data collected from field and used for offline training of the AI/ML model.

**Offline training:** An AI/ML training process where the model is trained based on collected dataset, and where the trained model is later used or delivered for inference. Note: This definition only serves as a guidance. There may be cases that may not exactly conform to this definition but could still be categorized as offline training by commonly accepted conventions.

**Online field data:** The data collected from field and used for online training of the AI/ML model.

**Online training:** An AI/ML training process where the model being used for inference) is (typically continuously) trained in (near) real-time with the arrival of new training samples. Note: the notion of (near) real-time vs. non real-time