



**Rail Telecommunications (RT);
Future Railway Mobile Communication System (FRMCS);
Terminology for FRMCS specifications**

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Foreword

This Technical Report (TR) has been produced by ETSI Technical Committee Railway Telecommunications (RT).

Modal verbs terminology

In the present document "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

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Introduction

The present document is a collection of terms, definitions, abbreviations and acronyms used in the Rail Telecommunications (RT) Technical Specifications concerning Future Railway Mobile Communication System (FRMCS). The present document provides a tool for further work on RT technical documentation and facilitates their understanding.

The following types of terms and acronyms are not included in the present document:

- terms and acronyms generally used in telecommunications;
- terms and acronyms from specific application domains such as mobile telephony;
- terms and acronyms defined and used solely within a specific ETSI specification to facilitate readability.

1 Scope

The purpose of the present document is to identify technical terms used within Rail Telecommunications (RT) Technical Specifications for the purpose of:

- Ensuring that editors use terminology that is consistent across specifications.
- Providing a reader with convenient reference for technical terms that are used across multiple documents.
- Preventing inconsistent use of terminology across documents.

The present document is a collection of terms and definitions and provides a tool for further work on FRMCS technical documentation and facilitates their understanding.

2 References

2.1 Normative references

Normative references are not applicable in the present document.

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

In the case of a reference to a TC RT document, a non-specific reference implicitly refers to the latest version of that document.

NOTE: While any hyperlinks included in this clause were valid at the time of publication ETSI cannot guarantee their long term validity.

The following referenced documents may be useful in implementing an ETSI deliverable or add to the reader's understanding, but are not required for conformance to the present document.

- | | |
|-------|---|
| [i.1] | UIC FRMCS SRS: "Future Railway Mobile Communication System; System Requirements Specification; AT-7800". |
| [i.2] | ETSI TS 123 280: "LTE; Common functional architecture to support mission critical services; Stage 2 (3GPP TS 23.280)". |
| [i.3] | UIC FRMCS FFFIS: "FRMCS FFFIS; Form Fit Functional Interface Specification; FFFIS-7950". |
| [i.5] | Directive 2012/34/EU of the European Parliament and of the Council of 21 November 2012 establishing a single European railway area. |
| [i.6] | Recommendation ITU-T I.112: "Integrated services digital network (ISDN); General structure; Vocabulary for ISDNs". |
| [i.7] | UIC FRMCS TOBA FRS: "On-Board FRMCS; Functional Requirements Specification; TOBA-7510". |
| [i.8] | UIC FRMCS FIS: "Future Railway Mobile Communication System; Functional Interface Specification; FIS-7970". |

3 Definition of terms, symbols and abbreviations

3.1 Terms

Void.

3.2 Symbols

Void.

3.3 Abbreviations

3GPP	3 rd Generation Partnership Project
EU	European Union
FFFIS	Form Fit Functional Interface Specification
FIS	Functional Interface Specification
FRMCS	Future Railway Mobile Communication System
FSCP	FRMCS Service Control Plane
FSUP	FRMCS Service User Plane
H2N	Host-to-Network
RMR	Railway Mobile Radio
UIC	Union Internationale de Chemin de fer
SRS	System Requirements Specification
TOBA	Telecom On-Board Architecture
TR	Technical Report
TS	Technical Specification

4 Basic FRMCS definitions

4.1 0-9

5G Core: a mandatory component of the FRMCS domain in the Transport Stratum. 5G Core system architecture and functions are defined in 3GPP, specifying how mobile core network should evolve to support the needs of 5G New Radio (NR A component in the Transport Stratum. 5G Core system architecture and functions are defined by 3GPP to support the needs and use cases of e.g. 5G New Radio (NR).

5GS: a 5th Generation System that represents a network architecture encompassing 5G Core, Next-Generation Radio Access Network (NG-RAN) and User Equipment (UE).

4.2 A

domain of applicability: FRMCS domain(s) from which a "non-interoperable application" (i.e. of application type II or IV) is able to operate.

NOTE: In other FRMCS domains which are not part of the application domain of applicability, service attempts by the application are expected to fail.

application function: the FRMCS service server within a service domain which performs signalling for applications.

application type: category of application identifying whether an application is interoperable and whether an application is an IM application or a RU application.

NOTE: Term derived from UIC FRMCS SRS [i.1].

application plane: interaction plane providing the data exchange between endpoint applications.

4.3 B

base station: equipment responsible for radio transmission and reception.

4.4 C

communication services: services enabling two-way communication between two or more authorised service users (i.e. applications) from applications towards other applications/entities reachable through various networks.

NOTE: Term derived from UIC FRMCS SRS [i.1].

complementary services: services providing support to communication services and the railway application stratum (such as providing and/or utilizing the location of the service user, etc.).

NOTE: Term derived from UIC FRMCS SRS [i.1].

coupling mode: operating mode, either loose-coupled mode or tight-coupled mode, used by an application to interact with the FRMCS system.

4.5 D

domain: the highest-level group of functional entities. Reference points are defined between domains.

4.6 E

Void.

4.7 F

foreign FRMCS domain: FRMCS domain which is not the Home FRMCS domain for a given train.

FRMCS domain: administrative domain which comprises a service domain and a transport domain under the control of an FRMCS operator.

NOTE: Term derived from UIC FRMCS SRS [i.1].

FRMCS operator: railway infrastructure manager, or an operator delegated by a railway infrastructure manager, who manages the FRMCS transport domain and/or FRMCS service domain for which FRMCS policies and FRMCS user subscriptions are applicable.

NOTE: Term derived from UIC FRMCS SRS [i.1].

FRMCS service client: client that enables the use of the communication services and/or complementary services for the railway applications.

NOTE: MC service client is one example of an FRMCS service client.

FRMCS Service Control Plane (FSCP): interaction plane providing the signalling for session establishment and teardown between FRMCS service client and FRMCS service server.

FRMCS service server: server application functions acting as counterparts to FRMCS service clients.

FRMCS Service User Plane (FSUP):

- interaction plane for data exchange between endpoint applications providing loose-coupled applications with tunnelling through FRMCS service clients;
- interaction plane equivalent to the application user plane for tight-coupled applications.

FRMCS system: telecommunication system conforming to FRMCS specifications, consisting of transport stratum and service stratum.

FRMCS user: human or machine making use of communication services and/or complementary services.

FRMCS on-board application profile: set of parameters associated to an application within the On-Board FRMCS which allows or forbids specific operations over OB_{APP} or characterize the application for specific operations (e.g. Startup Application or not).

FRMCS railway on-board profile: set of parameters associated to an application within the On-Board FRMCS which enables the communication services or prescribe specific behaviours in domain transitions.

FRMCS railway trackside profile: set of parameters associated to an application within the FRMCS trackside Gateway which enables the communication services.

FRMCS trackside application profile: set of parameters associated to an application within the FRMCS trackside gateway which allows or forbids specific operations over TS_{APP}.

4.8 G

Void.

4.9 H

home FRMCS domain: FRMCS domain which is considered by default as the home of the train.

NOTE 1: Term derived from UIC FRMCS SRS [i.1].

NOTE 2: To the notion of Home are associated elements of profile at the transport stratum level (such as SIM profile) and at the Service Stratum level (such as primary MC system).

H2N network endpoint: FRMCS service client hosted by a FRMCS Trackside Gateway that enables connectivity towards a specific IP network without requiring individual hosts of the said network to be individually locally-bound to the FRMCS trackside gateway.

4.10 I

IM application: an application that is either interoperable or non-interoperable and associated to an Infrastructure Manager (IM).

NOTE: Infrastructure manager is defined in point 2 of Article 3 in Directive 2012/34/EU [i.5].

4.11 J

Void.

4.12 K

Void.

4.13 L

local binding: procedure between an application and the On-Board FRMCS (respectively the FRMCS trackside gateway) enabling the establishment of a secure mutually-authenticated link as a pre-requisite to subsequent OB_{APP} (respectively TS_{APP}) control plane information exchanges.

NOTE: Term derived from UIC FRMCS FFFIS-7950 [i.3].

loose-coupled application: application which interacts with the FRMCS System through the On-Board FRMCS via OB_{APP} or through the FRMCS trackside gateway via TS_{APP} after a successful Local Binding and calls API features of OB_{APP} / TS_{APP} to use FRMCS communication services.

loose-coupled mode: operating mode used by a loose-coupled application to interact with the FRMCS system.

4.14 M

MC service client: a generic name for the client application function of a specific MC service. MC service client could be replaced by MCPTT client, or MCVideo client, or MCDData client depending on the context [i.2].

MC service user: an authorized user, who can use an MC service UE to participate in one or more MC services.

NOTE: Term defined in ETSI TS 123 280 [i.2].

MC system: the collection of applications, services, and enabling capabilities required to provide a single mission critical service or multiple mission critical services to one or more mission critical organizations [i.2].

NOTE: In an FRMCS System, an MC System is one example of a service domain for the specific support of mission critical communications using MCPTT and MCDData communication services.

MC user: a user identified by an MC ID, who after authorization obtains mission critical service(s).

NOTE: Term derived from UIC FRMCS FIS [i.8].

4.15 N

Void.

4.16 O

on-board FRMCS: system enabling FRMCS communication services for on-board applications [i.7].

4.17 P

proxy: person or entity that is acting or being used in the place of someone or something else.

4.18 Q

Void.

4.19 R

railway application stratum: railway-specific functionalities using services offered by the service stratum reference point: conceptual point applicable for interaction between functional services that enables authorized functions, e.g. in the network, to access their services.

reference point: a conceptual point at the conjunction of two non-overlapping functional groups.

NOTE 1: A reference point only becomes a physical interface when the functional entities on either side of it are contained in different physical equipment units.

NOTE 2: Term defined in Recommendation ITU-T I.112 [i.6].

RU application: an application that is either Interoperable or Non-interoperable and associated to a Railway Undertaking (RU).

NOTE: Railway undertaking is defined in point 1 of Article 3 of [i.5].

4.20 S

service domain: implementation of the Service Stratum belonging to a unique organization and is operated by a unique organization.

service stratum: set of functions to enable communication services, complementary services and operations and maintenance services for the FRMCS system.

startup application: application for which the On-board FRMCS takes specific measures as part of the FRMCS Start of Operation procedure.

NOTE 1: Term derived from UIC FRMCS SRS [i.1].

NOTE 2: Startup Applications are identified as such as part of the FRMCS onboard application profile.

4.21 T

tight-coupled application: application which interacts with the FRMCS System through the On-Board FRMCS via OB_{APP} or through the FRMCS Trackside Gateway via TS_{APP} after a successful local binding and directly uses standard reference points of the service domain.

tight-coupled mode: operating mode used by a tight-coupled application to interact with the FRMCS system.

Transport domain: implementation of the transport stratum belonging to a unique organization and is operated by a unique organization.

Transport Stratum: set of access and corresponding core functions applicable for the FRMCS system.

4.22 U

user equipment: communication unit providing the physical and logical functions necessary to access the FRMCS network. It includes the radio interface, processing elements, and interfaces to train systems, enabling railway-specific communication services.

4.23 V

Void.

4.24 W

Void.

4.25 X

Void.

4.26 Y

Void.

4.27 Z

Void.

History

Document history		
V1.1.1	June 2025	Publication