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Rail Telecommunications (RT) - Future Railway Mobile Communication System (FRMCS) - Building Blocks and Functions - Part 3: Train On-Board functions and interfaces

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Rail Telecommunications (RT);
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Foreword

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This Technical Specification (TS) has been produced by ETSI Technical Committee Railway Telecommunications (RT).

The present document is part 3 of a multi-part deliverable covering Building Blocks and Functions for the Future Railway Mobile Communication System (FRMCS), as identified below:

Part 1: "Transport Stratum";

Part 2: "Service Stratum";

Part 3: "Train On-Board functions and interfaces";

Part 4: "Trackside functions and interfaces";

Part 5: "User Equipment (UE) capabilities".

Modal verbs terminology

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1 Scope

The present document specifies the interfaces of the On-Board FRMCS enabling either interaction with On-Board applications or with FRMCS entities outside the train. The present document also specifies the On-Board Multipath Function and a set of procedures the On-Board FRMCS will need to conform to.

2 References

2.1 Normative 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.

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The following referenced documents are necessary for the application of the present document.

[1] ETSI TS 103 765-1: "Rail Telecommunications (RT); Future Railway Mobile Communication System (FRMCS); Building Blocks and Functions; Part 1: Transport Stratum".

[2] ETSI TS 103 765-2: "Rail Telecommunications (RT); Future Railway Mobile Communication System (FRMCS); Building Blocks and Functions; Part 2: Service Stratum".

[3] ETSI TS 103 765-5: "Rail Telecommunications (RT); Future Railway Mobile Communication System (FRMCS); Building Blocks and Functions; Part 5: User Equipment (UE) capabilities".

[4] ETSI TS 103 793: "Rail Telecommunications (RT); Future Railway Mobile Communication System (FRMCS); Radio Characteristics".

[5] UIC FFFIS-7950 (V2.1.0): "FRMCS FFFIS Form Fit Functional Interface Specification".

[6] IETF RFC 6960: "X.509 Internet Public Key Infrastructure, Online Certificate Status Protocol - OCSP".

[7] IETF RFC 9654: "Online Certificate Status Protocol (OCSP) Nonce Extension".

[8] IETF RFC 6066: "Transport Layer Security (TLS) Extensions: Extension Definitions".

[9] IETF RFC 6961: "The Transport Layer Security (TLS) Multiple Certificate Status Request Extension".

[10] IETF RFC 8555: "Automated Certificate Management Environment (ACME)".

[11] IETF RFC 7030: "Enrollment over Secure Transport".

[12] ETSI TS 133 180 (V18.1.0): "LTE; Security of the Mission Critical (MC) service (3GPP TS 33.180 version 18.1.0 Release 18)".

[13] ETSI TS 124 282 (V18.10.0): "LTE; Mission Critical Data (MCData) signalling control; Protocol specification (3GPP TS 24.282 version 18.10.0 Release 18)".

[14] ISO 8601 (2019): "Date and time — Representations for information interchange".

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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: "FRMCS System Requirements Specification".

[i.2] ETSI TR 103 791: "Rail Telecommunications (RT); Future Railway Mobile Communication System (FRMCS); Terminology for FRMCS specifications".

[i.3] GSMA™ SGP.21 V3.1: "RSP Architecture".

[i.4] GSMA™ SGP.22 V3.1: "RSP Technical Specification".

[i.5] ETSI TS 124 229 (V18.7.0): "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; 5G; IP multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3 (3GPP TS 24.229 version 18.7.0 Release 18)".

[i.6] ETSI TS 103 764: "Rail Telecommunications (RT); Future Railway Mobile Communication System (FRMCS); System Architecture".

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3 Definition of terms, symbols and abbreviations

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3.1 Terms

For the purposes of the present document, the terms given in ETSI TR 103 791 [i.2] and the following apply:

OB_{APP} Application Context: context maintained by the On-Board FRMCS for an application instance (identified by the OB_{APP} Application Tuple), in between registration and de-registration

OB_{APP} Application Tuple: tuple of appCategory, staticId, couplingMode

NOTE: As specified in UIC FRMCS FFFIS-7950 [5], clause 9.10.1.

service continuity: capability of the FRMCS system to maintain the communication service for the user in an acceptable level during the Inter-FRMCS-Domain Transition

Serving FRMCS Transport/Service Domain: FRMCS Transport/Service Domain which is currently carrying/serving the communications of applications of Type I (IM interoperable applications)

NOTE: In the Inter-FRMCS-Transport-Domain transition procedure, this is the FRMCS Transport/Service Domain before the transition takes place.

Serving On-Board FRMCS Radio Module: On-Board FRMCS Radio Module carrying in the Serving FRMCS Transport Domain at least the active communication services for applications of Type I (IM interoperable applications) with service continuity requirement

Target FRMCS Transport/Service Domain: FRMCS Transport/Service Domain which is the target of network transition for applications of Type I (IM interoperable applications)

NOTE: At the completion of network transition (from GSM-R or from a previous FRMCS Domain), the Target FRMCS Domain becomes the Serving FRMCS Domain.

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