ETSI TS 103 795-1 V1.1.1 (2024-03)

Core Network and Interoperability Testing (INT);
Network Interoperability Test Description
for emergency services over VoLTE;
(3GPP™ Release 15);
Part 1: Test Purposes

Reference
DTS/INT-00187-1

Keywords
interoperability, VoLTE, testing

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Sous-Préfecture de Grasse (06) N° w061004871

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Core Network and Interoperability Testing (INT).

The present document is part 1 of a multi-part deliverable covering network interoperability test description for emergency services over VoLTE, as identified below:

Part 1: "Test Purposes";

Part 2: "Test Descriptions";

Part 3: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT)".

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**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).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

1 Scope

The present document defines network interoperability test purposes for emergency services over VoLTE specifically emergency call and NG eCall. The interoperability emergency test purposes cover the test scenarios within single-network configuration, as well as interconnect and roaming test scenarios within multiple-network configurations. Test purposes provide monitoring points and test specifications in prose details with focus on different interworking and interoperability interfaces using SIP, Diameter protocols and checks of ENUM Transactions.

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.

Referenced documents which are not found to be publicly available in the expected location might be found at https://docbox.etsi.org/Reference/.

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 are necessary for the application of the present document.

[1] ETSI TS 124 229 (V15.6.0): "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; IP multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3 (3GPP TS 24.229 version 15.6.0 Release 15)".

[2] ETSI TS 129 165: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; 5G; Inter-IMS Network to Network Interface (NNI) (3GPP TS 29.165 Release 15)".

[3] ETSI TS 129 228 (V15.1.0): "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; IP Multimedia (IM) Subsystem Cx and Dx Interfaces; Signalling flows and message contents (3GPP TS 29.228 version 15.1.0 Release 15)".

[4] ETSI TS 129 229 (V15.0.0): "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Cx and Dx interfaces based on the Diameter protocol; Protocol details (3GPP TS 29.229 version 15.0.0 Release 15)".

[5] ETSI TS 132 260: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Telecommunication management; Charging management; IP Multimedia Subsystem (IMS) charging (3GPP TS 32.260 Release 15)".

[6] ETSI TS 132 299: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Telecommunication management; Charging management; Diameter charging applications (3GPP TS 32.299 Release 15)".

[7] ETSI TS 129 214: "Universal Mobile Telecommunications System (UMTS); LTE; 5G; Policy and charging control over Rx reference point (3GPP TS 29.214 Release 15)".

[8] ETSI TS 129 212 (V15.3.0): "Universal Mobile Telecommunications System (UMTS); LTE; Policy and Charging Control (PCC); Reference points (3GPP TS 29.212 version 15.3.0 Release 15)".

[9] ETSI TS 129 272: "Universal Mobile Telecommunications System (UMTS); LTE; 5G; Evolved Packet System (EPS); Mobility Management Entity (MME) and Serving GPRS Support Node (SGSN) related interfaces based on Diameter protocol (3GPP TS 29.272 Release 15)".

[10] ETSI TS 129 215: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Policy and Charging Control (PCC) over S9 reference point; Stage 3 (3GPP TS 29.215 Release 15)".

[11] ETSI TS 129 328 (V15.3.0): "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; IP Multimedia (IM) Subsystem Sh interface; Signalling flows and message contents (3GPP TS 29.328 version 15.3.0 Release 15)".

[12] ETSI TS 129 329: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; 5G; Sh interface based on the Diameter protocol; Protocol details (3GPP TS 29.329 Release 15)".

[13] ETSI ES 203 119-4: "Methods for Testing and Specification (MTS); The Test Description Language (TDL); Part 4: Structured Test Objective Specification (Extension)".

[14] IETF RFC 3261: "SIP: Session Initiation Protocol".

[15] ETSI TS 123 167: "IP Multimedia Subsystem (IMS) emergency sessions".

[16] IETF RFC 5031: "A Uniform Resource Name (URN) for Emergency and Other Well-Known Services".

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.

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 are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] ISO/IEC 9646-1: "Information technology -- Open Systems Interconnection -- Conformance testing methodology and framework -- Part 1: General concepts".

3 Definition of terms, symbols and abbreviations

3.1 Terms

For the purposes of the present document, the terms given in ETSI TS 124 229 [1], ETSI TS 129 165 [2], ETSI TS 129 228 [3], ETSI TS 129 229 [4], ETSI TS 132 260 [5], ETSI TS 132 299 [6], ETSI TS 129 214 [7], ETSI TS 129 212 [8], ETSI TS 129 272 [9], ETSI TS 129 215 [10], ETSI TS 129 328 [11], ETSI TS 129 329 [12] and the following apply:

Abstract Test Method (ATM): Refer to ISO/IEC 9646-1-1 [i.1].

Abstract Test Suite (ATS): Refer to ISO/IEC 9646-1-1 [i.1].

Implementation Under Test (IUT): Refer to ISO/IEC 9646-1-1 [i.1].

Test Purposes (TP): Refer to ISO/IEC 9646-1-1 [i.1].

3.2 Symbols

Void.

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in ETSI TS 124 229 [1], ETSI TS 129 165 [2], ETSI TS 129 228 [3], ETSI TS 129 229 [4], ETSI TS 132 260 [5], ETSI TS 132 299 [6], ETSI TS 129 214 [7], ETSI TS 129 212 [8], ETSI TS 129 272 [9], ETSI TS 129 215 [10], ETSI TS 129 328 [11], ETSI TS 129 329 [12] and the following apply:

3GPP	3rd Generation Partnership Project
ACK	SIP 'ACK' message
ATS	Abstract Test Suite
CF	(Test) Configuration
CX	Cx interface
ENUM	E.164 Number Mapping
EPC	Evolved Packet Core
GM	Gm interface
GX	Gx interface
IC	Ic interface
ICSCF	Interrogating Call Session Control Function
IUT	Implementation Under Test
MW	Mw interface
PCSCF	Proxy Call Session Control Function
PGW	PDN Gateway
PICS	Protocol Implementation Conformance Statement
RX	Rx interface
SCSCF	Serving Call Session Control Function
TAS	Telephony Application Server
TDL-TO	TDL Test Objectives
TP	Test Purposes
TSS	Test Suite Structure

4 Protocol Implementation Conformance Statement (PICS)

The purpose of a PICS pro forma is to allow the static conformance review of an implementation. For an implementation claiming to be conforming to the requirements of a given base protocol specification all, specified functions need to be identified which an IUT shall support, those which are recommended or optional and those which are conditional based on the presence of other functions. The totality of those static requirement is usually listed in PICS pro forma tables in the form of questions which need to be answered by the provider of an implementation. During the static conformance review, the answers to all PICS questions are verified and the conformance of an implementation to a base protocol specification can be determined. However, in the context of an interoperability testing exercise this first role has no relevance.

A second role of the PICS pro forma is the use of PICS items as test selection criteria for test purposes. This is of importance for optional features within a protocol specification. If an implementation does not support an optional feature, it is still conformant to the specification and will not fail the static conformance review. However, testing such an unsupported feature with a test purpose is not applicable to that implementation and the PICS item is used to deselect that test purpose during a test run.

In the case of the present technical specification, as the static conformance of an implementation is not the main objective the test purposes defined and listed in clause 7 of the present document could have still contained references to PICS items. Those would have been used for test selection purposes by identifying which functions an IUT supports when performing interoperability testing. However, during the development of the TPs no PICS items were identified for test selection. This is mainly due to the fact that the interoperability testing concentrates on the main, i.e. mandatory capabilities at the interfaces under testing.

For information, annex B lists references to the PICS pro forma specifications for all interfaces under testing.

5 Test Configurations

5.1 General

Test purposes of the present document address the VoLTE functional entities that are accessible via the following standardized interfaces:

- SIP interfaces: Gm, Mw, Ic(Ici), Mx, Ml, Mm, Mi and ISC;
- Diameter interfaces: Rx, Gx, S6a, S9, Sh, Cx;
- Voice interfaces: RTP, RTCP.

5.2 Configuration CF_VoLTE_INT_ES

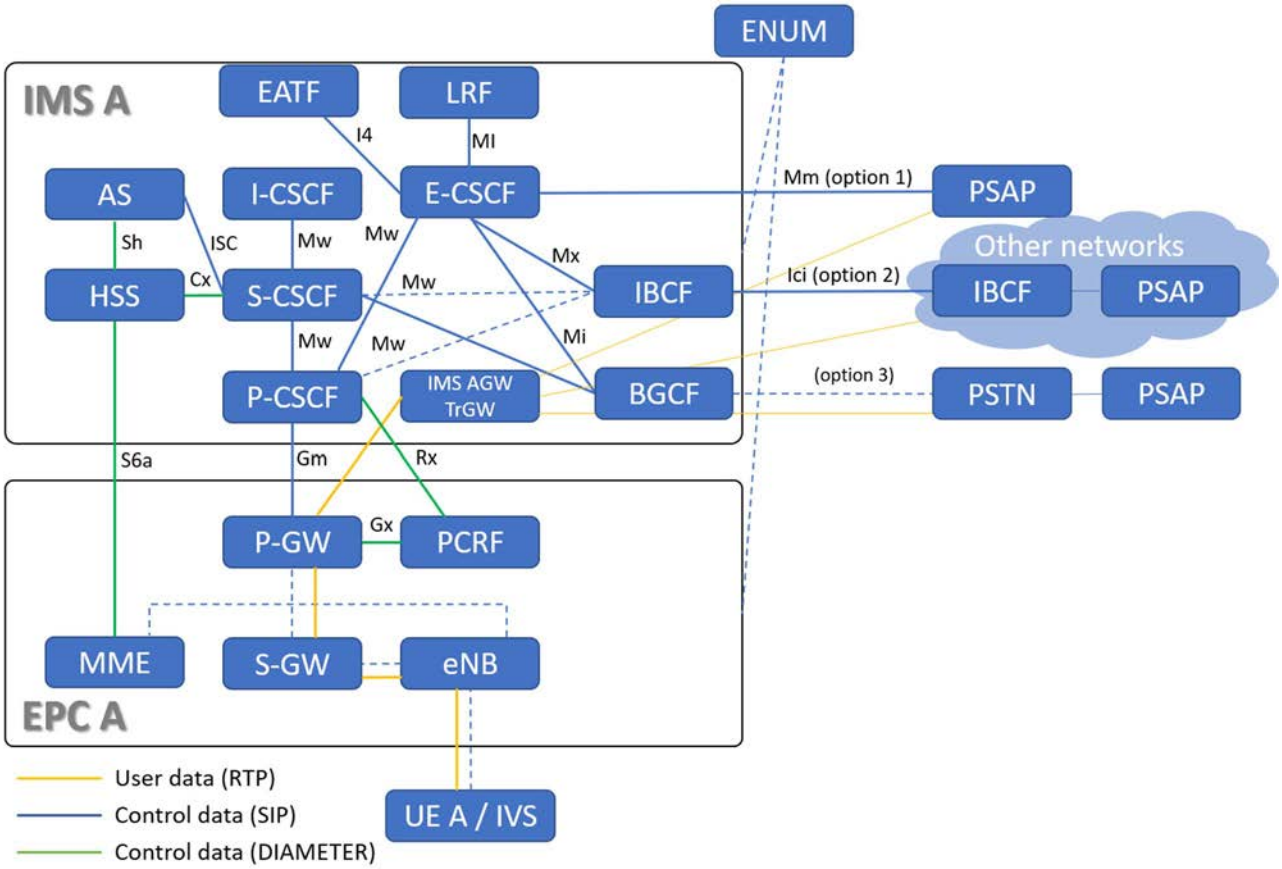

Figure 1: Configuration CF_VoLTE_INT_ES

Configuration CF_VoLTE_INT_ES is used for one Home Public Line Mobile Network (HPLMN) where users are attached and registered to their home network. The suffix INT stands for home interoperability scenario and ES postfix stands for Emergency service. UE-A or IVS connects to home network represented by EPC A and IMS A. E-CSCF may route emergency IMS session directly to PSAP (option 1). Another option is routing of emergency IMS session from E-CSCF towards IBCF to another IP multimedia network towards PSAP (option 2 in Figure 1) and to support legacy networks E-CSCF may route emergency IMS session to the BGCF via PSTN and towards PSAP (option 3 in Figure 1). Attachment, Registration, Detachment and Deregistration procedures of user are performed locally in their own home network. For Call establishment, call modification and call release procedures signalling are going in HPLMN network and therefore all related TDs are named as home interoperability tests.

NOTE: It is assumed that operator emergency requests are forwarded from P-CSCF to E-CSCF as described in ETSI TS 124 229 [1], clause 5.2.10.3 (item 1B).

5.3 Configuration CF_VoLTE_RMI_ES

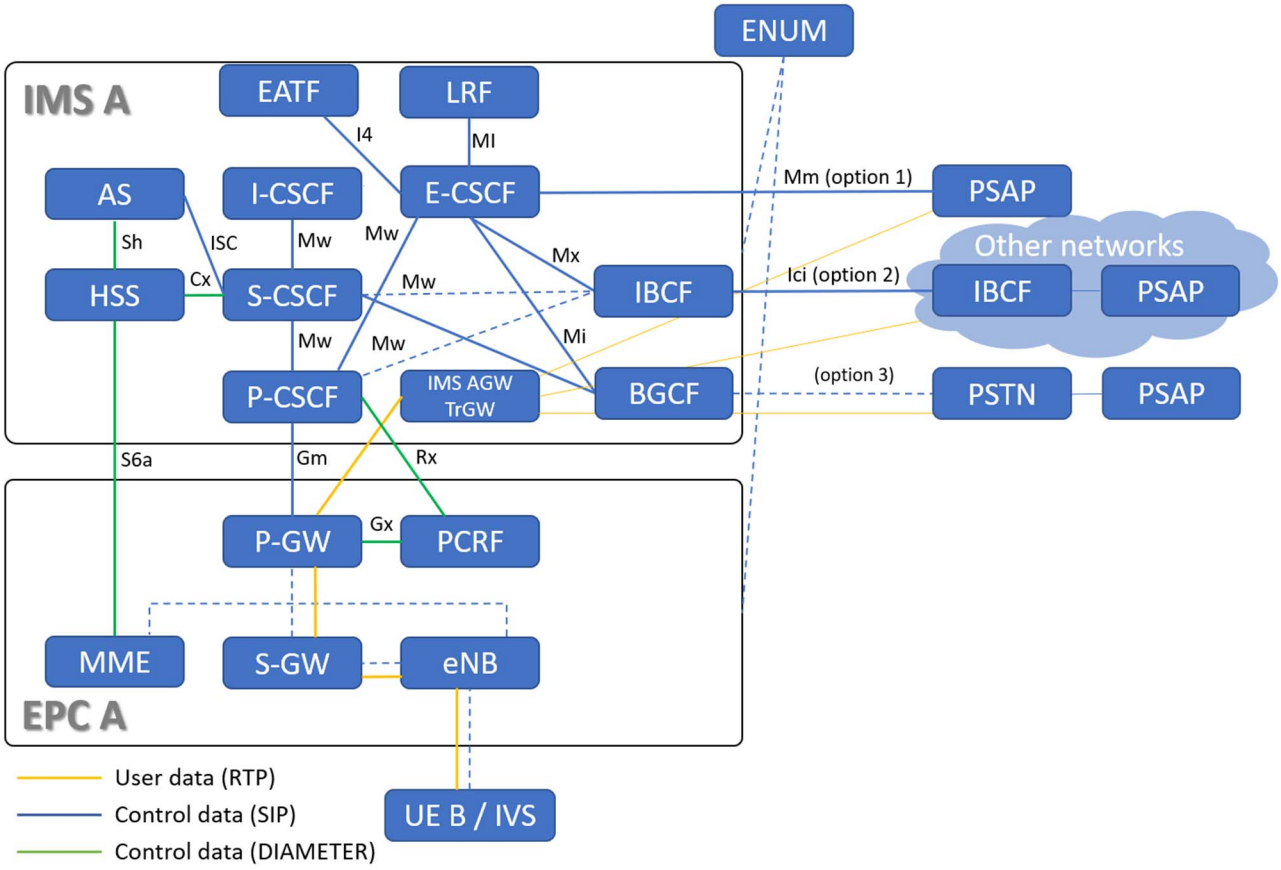

Figure 2: Configuration CF_VoLTE_RMI_ES

Configuration CF_VoLTE_RMI_ES describes roaming scenario. Within CF_VoLTE_RMI_ES, UE-B connects to the visited network A attached to the EPC A. Attachment and detachment of UE-B is performed at the visited network A and provides the ability to subsequently register the visiting user UE-B or IVS at the home network. For call establishment, call modification and call release procedures signalling are going via VPLMN network and therefore all related TDs are named as roaming interoperability tests. Visited E-CSCF may route emergency IMS session directly to PSAP (option 1). Another option is routing of emergency IMS session from visited E-CSCF towards IBCF to another IP multimedia network towards PSAP (option 2) and to support legacy networks visited E-CSCF may route emergency IMS session to the BGCF via PSTN and towards PSAP (option 3).

NOTE: It is assumed that operator emergency requests are forwarded from P-CSCF to E-CSCF as described in ETSI TS 124 229 [1], clause 5.2.10.3 (item 1B).

5.4 Configuration CF_VoLTE_RMI_S8HR

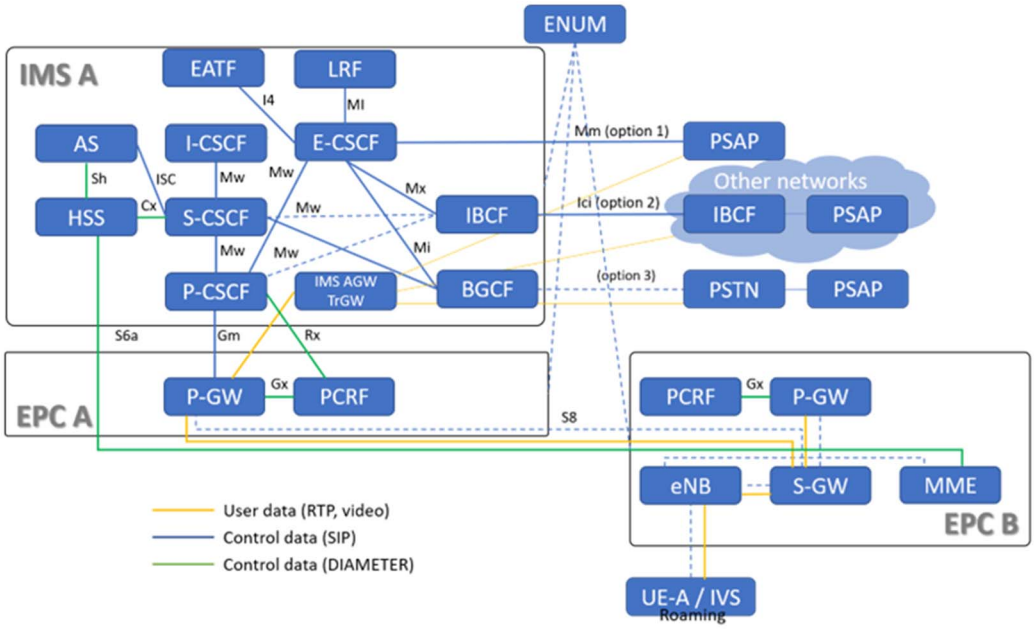

Figure 3: Configuration CF_VoLTE_RMI_S8HR

Configuration CF_VoLTE_RMI_S8HR describes an additional roaming scenario. Within CF_VoLTE_RMI_S8HR, UE-A connects to visited network B attached to the EPC B. Attachment and detachment of UE-A is performed at the visited network A and provides the ability to subsequently register the visited user UE-A at the home network over the S8 interface. UE_A or IVS acts as originating user and when an emergency call is trying to be established the signalling runs from UE_A or IVS over roaming/visited network B towards the home network A. The related roaming interoperability configuration is named CF_VoLTE_RMI_S8HR where 'S8' signifies routing over interface S8.

6 Test Suite Structure

6.1 Structure for Emergency VoLTE test purposes

Table 1 shows the Test Suite Structure (TSS) including its subgroups defined for conformance testing of VoLTE emergency test purposes.

Table 1: TSS for emergency VoLTE TPs

Interfaces	Component	Group	Scope	Category
Gm	P-CSCF	EMC	REGISTER	
Mw	P-CSCF	NGC	INVITE	
	I-CSCF	ECO	BYE	
	S-CSCF		CANCEL	
MI	E-CSCF		INFO	Valid
Mx	E-CSCF		200OK_BYE	
Mm	E-CSCF		200OK_CANCEL	
Mi	E-CSCF		380INVITE	
Ic	IBCF		480INVITE	
ISC	S-CSCF		487INVITE	
Cx	HSS		UAA	Valid
			SAA	Valid
Rx	PCSCF		AAR	Valid
	PCRF		AAA	Valid
Gx	PGW		CCA	Valid
	PCRF			
S6a			ULA	Valid

Interfaces	Component	Group	Scope	Category
	HSS MME			
Rtp				Valid

The test suite is structured as a tree with the Interfaces defined as Gm, Mw, Ml, Mx, Mm, Mi, Rx, Gx, S6a, Cx. The tree is of rank 4 with the first rank a Component, the second Group, the third sub-group Scope and the fourth a category.

6.2 Test groups

6.2.1 Interfaces

The Interface identify the entities to be tested.

6.2.2 Component

This level contains the component where test purpose is checked.

6.2.3 Group

This level contains emergency service checked with test purpose.

6.2.4 Scope

This level identifies the scope related to SIP or Diameter Method which will be checked.

6.2.5 Categories

This level contains the standard conformance test categories: behaviour for valid, invalid, inopportune events and timers.

7 Test Purposes (TP)

7.1 General

7.1.1 Test strategy

The test purposes were generated as a result of analysis of the base documents ETSI TS 124 229 [1], ETSI TS 129 165 [2], ETSI TS 129 228 [3], ETSI TS 129 229 [4], ETSI TS 132 260 [5], ETSI TS 132 299 [6], ETSI TS 129 214 [7], ETSI TS 129 212 [8], ETSI TS 129 272 [9], ETSI TS 129 215 [10], ETSI TS 129 328 [11], ETSI TS 129 329 [12], ETSI TS 123 167 [15].

NOTE: The test purposes in the present document are new TPs identified from the Test Description specification where new emergency conformance requirements need to be fulfilled.

7.1.2 TP naming convention

TPs are numbered, starting at 01, within each group. Groups are organized according to the TSS.

Table 2: TP identifier naming convention scheme

Identifier: **<TP>_<interface>_<component>_<group>_<scope>_<nn>**			
<tp>	=	Test Purpose:	fixed to "TP"
<interface>	=	Interface:	GM, MW, MX, MM, ML, MI, IC, ISC, CX, RX, GX, S6, RTP
<component>	=	Component:	UE, PGW, PCRF, PCSCF, ECSCF, ICSCF, IBCF, HSS, TAS
<group>	=	emergency:	EMC(emergency call), NGC(NG eCall), ECO (emergency call or NG eCall)
<scope>	=	group/message	INVITE, BYE…
			AAR, AAA…
<nn>	=	sequential number	(01 to 99)

7.1.3 TP structure

Each TP has been written in TDL-TO and thus in a structured manner which is consistent with all other TPs. The intention of this is to make the TPs more formal. In addition, a more readable format is provided by generating tables out of the TDL-TO format. The defined structure, that has been used, is illustrated in Table 3. This table should be read in conjunction with any TP, i.e. a TP can be used as an example to facilitate the full comprehension of Table 3. All structures are defined formally in the TDL Specification ETSI ES 203 119-4 [13]. The TDL-TO files are also included as an electronic annex to the present document.

Table 3: Structure of a single TP

TP part	Text	Example
Header	<Identifier> <Test objective> <Reference> <PICS reference>	*see table 2* *"The IUT is responding on a correctly set …"* *ETSI TS* 124 229*#clause-3* *PIC_Server*
Initial condition (optional)	Free text description of the condition that the IUT has reached before the test purpose applies.	*… the IUT is in the initial state …*
Start point	Describes the full logic of the test purpose. Includes trigger and expected behaviour of the IUT.	*Expected behaviour* *ensure that { … }*
Trigger	One or more actions that trigger an expected response of the IUT. Mostly a set of different messages the IUT receives.	*when {* *the IUT entity receives an INVITE request message* *containing CSeq indicating value 1 …* *}*
Expected behaviour	Describes the response that the IUT sends after receiving a certain (set of) messages. This response describes the pass criteria	*then {* *the IUT entity sends a 100 Trying response message* *containing CSeq indicating value 1 …* *}*

7.2 Ic interface

TP Id	TP_IC_IBCF_ECO_480INVITE_01
Test Objective	Verify that the IBCF successfully processes a 480 INVITE (Temporary unavailable) originating leg.
Reference	ETSI TS 124 229 [1], clause 5.10.3.2 and IETF RFC 3261 [14], clause 13.3.1.3
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
UE_A isAttachedTo the EPC_A and
UE_A isRegisteredTo the IMS_A and
PSAP isTemporaryUnavailable
}	

Expected Behaviour	

ensure that {
when {
the PSAP sends a 480_INVITE "addressed to UE_A" to the IMS_A entity
}
then {
the IMS_IBCF_A receives the 480_INVITE
from the PSAP and
the IMS_IBCF_A forwards the 480_INVITE
to the IMS_E_CSCF entity
}
}	

7.3 Gm interface

TP Id	TP_GM_PCSCF_ECO_REGISTER_01
Test Objective	Verify that the P-CSCF successfully processes initial emergency registration (Successful).
Reference	ETSI TS 124 229 [1], clauses 5.1.6.2, 5.2.10.1, 5.1.1.1, 6.1.1 and 6.1.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the UE_A isEmergencyAttachedTo the EPC_A and
the UE_A not isRegisteredTo the IMS_A
}	

Expected Behaviour	

ensure that {
when {
the IMS_P_CSCF_A receives a REGISTER containing
From indicating value PX_UE_A_SIP_URI,
To indicating value PX_UE_A_SIP_URI,
CallId indicating value PX_UE_A_CALLID,
Via indicating value PX_UE_A_VIA,
Authorization containing
Authentication_Schema indicating value PX_TO_BE_DEFINED,
Authentication_URI indicating value PX_TO_BE_DEFINED,
Username indicating value PX_UE_A_USERNAME,
Realm indicating value PX_UE_A_REALM,
Algorithm indicating value PX_UE_A_AUTH_ALG,
Nonce indicating value "",
not term_ioi,
not SecurityClient,
Contact indicating value "sos"
from the UE_A entity
}
then {
the IMS_P_CSCF_A sends a 401_Unauthorized containing
From indicating value PX_UE_A_SIP_URI,
To indicating value PX_UE_A_SIP_URI,
CallId indicating value PX_UE_A_CALLID,
Via indicating value PX_UE_A_VIA,
Path,
Warning,
PAccessNetworkInfo,
WwwAuthenticate containing
Digest,
Realm indicating value PX_UE_A_REALM,	

```
                Algorithm indicating value PX_UE_A_AUTH_ALG,
                Nonce indicating value "not empty",
                qop indicating value "auth"
        to the UE_A entity
    }
}
```

TP Id	TP_GM_PCSCF_ECO_REGISTER_02
Test Objective	Verify that the P-CSCF successfully processes a full emergency registration (Successful).
Reference	ETSI TS 124 229 [1], clauses 5.1.6.2, 5.2.10.1, 5.1.1.1, 6.1.1 and 6.1.3
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

```
with {
the UE_A isEmergencyAttachedTo the EPC_A and
the UE_A not isRegisteredTo the IMS_A and
the UE_A hasAchievedFirstRegistration
        }
```

Expected Behaviour

```
ensure that {
    when {
        the IMS_P_CSCF_A receives a REGISTER containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_UE_A_SIP_URI,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_UE_A_VIA,
            Authorization containing
                Authentication_Schema indicating value PX_TO_BE_DEFINED,
                Authentication_URI indicating value PX_TO_BE_DEFINED,
                Username indicating value PX_UE_A_USERNAME,
                Realm indicating value PX_UE_A_REALM,
                Algorithm indicating value PX_UE_A_AUTH_ALG,
                Nonce indicating value "not empty",
                qop indicating value "auth",
            not SecurityClient,
            Contact indicating value "sos"
        from the UE_A entity
    }
    then {
        the IMS_P_CSCF_A sends an 200_Ok containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_UE_A_SIP_URI,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_UE_A_VIA,
            AuthenticationInfo,
            PAccessNetworkInfo,
            PAssociatedURI indicating value PX_UE_A_SIP_URI,
            PChargingVector,
               orig_ioi_parameter
                   indicating value "Operator Identifier Of ImsA"
            Path,
            ServiceRoute
        to the UE_A entity
    }
}
```

TP Id	TP_GM_PCSCF_ECO_REGISTER_03
Test Objective	Verify that the emergency registration is rejected with 403 (Forbidden) in case invalid credentials sent from UE. (Unsuccessful emergency registration).
Reference	ETSI TS 124 229 [1], clauses 5.1.6.2 and 5.2.10.5
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

```
with {
the UE_A isEmergencyAttachedTo the EPC_A and
the UE_A not isRegisteredTo the IMS_A
        }
```

Expected Behaviour

ensure that {
  when {
  the IMS_P_CSCF_A receives a REGISTER containing
  From indicating value PX_UE_A_SIP_URI,
  To indicating value PX_UE_A_SIP_URI,
  CallId indicating value PX_UE_A_CALLID,
  Via indicating value PX_UE_A_VIA,
  Authorization indicating value "Invalid credentials",
  Contact indicating value "sos"
  from the UE_A entity
  }
  then {
  the IMS_P_CSCF_A sends a 403_Forbiden containing
  From indicating value PX_UE_A_SIP_URI,
  To indicating value PX_UE_A_SIP_URI,
  CallId indicating value PX_UE_A_CALLID,
  Via indicating value PX_UE_A_VIA
  to the UE_A entity
  }
}

TP Id	TP_GM_PCSCF_ECO_REGISTER_04
Test Objective	Verify that the emergency registration is rejected with 403 (Forbidden) in case the UE and P-CSCF does not support GPRS-IMS-Bundled authentication. (Unsuccessful emergency registration).
Reference	ETSI TS 124 229 [1], clauses 5.1.6.2 and 5.2.10.5
Configuration	CF_VoLTE_RMI_ES
PICS Selection	NONE
Initial Conditions	

with {
the UE_A isEmergencyAttachedTo the EPC_B and
the UE_A not isRegisteredTo the IMS_B
  }	

Expected Behaviour	

ensure that {
  when {
  the IMS_P_CSCF_B receives a REGISTER containing
  From indicating value PX_UE_A_SIP_URI,
  To indicating value PX_UE_A_SIP_URI,
  CallId indicating value PX_UE_A_CALLID,
  Via indicating value PX_UE_A_VIA,
  Authorization not indicating value GPRS_IMS_Bundled_authentication,
  Contact indicating value "sos"
  from the UE_A entity
  }
  then {
  the IMS_P_CSCF_B sends a 403_Forbidden containing
  From indicating value PX_UE_A_SIP_URI,
  To indicating value PX_UE_A_SIP_URI,
  CallId indicating value PX_UE_A_CALLID,
  Via indicating value PX_UE_A_VIA,
  MessageBody containing
  XML containing
  ims_3gpp_element indicating value anonymous_emergencycall
  to the UE_A entity
  }
}	

TP Id	TP_GM_PCSCF_ECO_REGISTER_05
Test Objective	Verify that the emergency registration is rejected with 420 (Bad Extension) in case the UE does not support GPRS-IMS-Bundled authentication while the P-CSCF supports it. (Unsuccessful emergency registration).
Reference	ETSI TS 124 229 [1], clauses 5.1.6.2 and 5.2.10.5
Configuration	CF_VoLTE_RMI_ES
PICS Selection	NONE
Initial Conditions	

with {
the UE_A isEmergencyAttachedTo the EPC_B and
the UE_A not isRegisteredTo the IMS_B
  }	

Expected Behaviour

ensure that {
  when {
  the IMS_P_CSCF_B receives a REGISTER containing
  From indicating value PX_UE_A_SIP_URI,
  To indicating value PX_UE_A_SIP_URI,
  CallId indicating value PX_UE_A_CALLID,
  Via indicating value PX_UE_A_VIA,
  Authorization not indicating value GPRS_IMS_Bundled_authentication,
  Contact indicating value "sos"
  from the UE_A entity
  }
  then {
  the IMS_P_CSCF_B sends a 420_BadExtension containing
  From indicating value PX_UE_A_SIP_URI,
  To indicating value PX_UE_A_SIP_URI,
  CallId indicating value PX_UE_A_CALLID,
  Via indicating value PX_UE_A_VIA,
  Unsupported indicating value sec_agree,
  MessageBody containing
  XML containing
  ims_3gpp_element indicating value anonymous_emergencycall
  to the UE_A entity
  }
}

TP Id	TP_GM_PCSCF_ECO_INVITE_01
Test Objective	Verify that the P-CSCF successfully receives an initial emergency INVITE from an unregistered UE.
Reference	ETSI TS 124 229 [1], clause 5.1.6.8.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the UE_A isAttachedTo the EPC_A and
the UE_A not isRegisteredTo the IMS_A and
the UE_A not isEmergencyRegisteredTo the IMS_A
}	

Expected Behaviour	

ensure that {
  when {
  the UE_A isRequestedToEstablishEmergencyCall
  }
  then {
  the IMS_P_CSCF_A receives an INVITE containing
  From indicating value "Anonymous",
  To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
  CallId indicating value PX_UE_A_CALLID,
  Via indicating value PX_UE_A_VIA,
  Route indicating value PX_UE_A_SERVICE_ROUTE,
  MessageBody
  from the UE_A entity
  }
}	

TP Id	TP_GM_PCSCF_ECO_INVITE_02
Test Objective	Verify that the P-CSCF successfully receives an initial emergency INVITE from an emergency registered UE.
Reference	ETSI TS 124 229 [1], clause 5.1.6.8.3
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the UE_A isEmergencyAttachedTo the EPC_A and
the UE_A isEmergencyRegisteredTo the IMS_A
}	

Expected Behaviour

ensure that {
when {
the UE_A isRequestedToEstablishEmergencyCall
}
then {
the IMS_P_CSCF_A receives an INVITE containing
From indicating value PX_UE_A_SIP_URI,
To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
CallId indicating value PX_UE_A_CALLID,
Via indicating value PX_UE_A_VIA,
Route indicating value PX_UE_A_SERVICE_ROUTE,
PPreferredIdentity,
MessageBody
from the UE_A entity
}
}

TP Id	TP_GM_PCSCF_ECO_INVITE_03
Test Objective	Verify that the P-CSCF successfully receives an initial emergency INVITE from a registered but not emergency registered UE.
Reference	ETSI TS 124 229 [1], clause 5.1.6.8.4
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the UE_A isAttachedTo the EPC_A and
the UE_A isRegisteredTo the IMS_A and
the UE_A not isEmergencyRegisteredTo the IMS_A
}	

Expected Behaviour	

ensure that {
when {
the UE_A isRequestedToEstablishEmergencyCall
}
then {
the IMS_P_CSCF_A receives an INVITE containing
From indicating value PX_UE_A_SIP_URI,
To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
CallId indicating value PX_UE_A_CALLID,
Via indicating value PX_UE_A_VIA,
Route indicating value PX_UE_A_SERVICE_ROUTE,
PPreferredIdentity,
MessageBody
from the UE_A entity
}
}	

TP Id	TP_GM_PCSCF_NGC_INVITE_01
Test Objective	Verify that the P-CSCF successfully receives an initial eCall type INVITE from an emergency registered UE.
Reference	ETSI TS 124 229 [1], clause 5.1.6.11
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the UE_A isEmergencyAttachedTo the EPC_A and
the UE_A isEmergencyRegisteredTo the IMS_A
}	

Expected Behaviour

ensure that {
  when {
  the UE_A isRequestedToEstablisheCallTypeEmergencyCall
  }
  then {
  the IMS_P_CSCF_A receives an INVITE containing
  From indicating value PX_UE_A_SIP_URI,
  To indicating value PX_SIP_ECALL_EMERGENCY_SERVICE_URN,
  CallId indicating value PX_UE_A_CALLID,
  Via indicating value PX_UE_A_VIA,
  Route indicating value PX_UE_A_SERVICE_ROUTE,
  Accept indicating value "application/EmergencyCallData.Control+xml",
  RecvInfo indicating value "EmergencyCallData.eCall.MSD",
  PPreferredIdentity,
  ContentDisposition containing
  handling indicating value "optional",
  MessageBody containing
  MIME containing MSD
  from the UE_A entity
  }
}

TP Id	TP_GM_PCSCF_NGC_INFO_01
Test Objective	Verify that the P-CSCF successfully receives an INFO from the UE in an established eCall type emergency call that has been requested to transfer an updated MSD.
Reference	ETSI TS 124 229 [1], clause 5.1.6.11.3
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the UE_A isEmergencyAttachedTo the EPC_A and
the UE_A isEmergencyRegisteredTo the IMS_A and
the UE_A previouslyEstablishedEmergencyCallWith the PSAP
  }	

Expected Behaviour	

ensure that {
  when {
  the UE_A isRequestedToTransferUpdatedMSD
  }
  then {
  the IMS_P_CSCF_A receives an INFO containing
  From indicating value PX_UE_A_SIP_URI,
  To indicating value PX_SIP_ECALL_EMERGENCY_SERVICE_URN,
  CallId indicating value PX_UE_A_CALLID,
  Via indicating value PX_UE_A_VIA,
  Route indicating value PX_UE_A_SERVICE_ROUTE,
  InfoPackage indicating value "EmergencyCallData.eCall.MSD",
  ContentDisposition indicating value "Info-Package",
  MessageBody containing
  MIME indicating value "application/EmergencyCallData.eCall.MSD",
  ContentDisposition indicating value "By-Reference"
  from the UE_A entity
  }
}	

TP Id	TP_GM_PCSCF_ECO_INVITE_05
Test Objective	Verify that the P-CSCF successfully receives an initial emergency INVITE from a registered but not emergency registered UE.
Reference	ETSI TS 124 229 [1], clause 5.1.6.8.4
Configuration	CF_VoLTE_RMI_ES
PICS Selection	NONE
Initial Conditions	

with {
the UE_A isAttachedTo the EPC_B and
the UE_A isRegisteredTo the IMS_A and
the UE_A not isEmergencyRegisteredTo the IMS_A
  }	

Expected Behaviour

ensure that {
  when {
  the UE_A isRequestedToEstablishEmergencyCall
  }
  then {
  the IMS_P_CSCF_A receives an INVITE containing
  From indicating value PX_UE_A_SIP_URI,
  To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
  CallId indicating value PX_UE_A_CALLID,
  Via indicating value PX_UE_A_VIA,
  Route indicating value PX_UE_A_SERVICE_ROUTE,
  PPreferredIdentity,
  MessageBody
  from the UE_A entity
  }
}

TP Id	TP_GM_PCSCF_ECO_BYE_01
Test Objective	Verify that the P-CSCF successfully processes a BYE for an emergency call.
Reference	ETSI TS 124 229 [1], clause 5.1.6.9
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the UE_A isEmergencyAttachedTo the EPC_A and
the UE_A isEmergencyRegisteredTo the IMS_A and
the UE_A previouslyEstablishedEmergencyCallWith the PSAP
  }	

Expected Behaviour	

ensure that {
  when {
  the UE_A isRequestedToSend a BYE
  }
  then {
  the IMS_P_CSCF_A receives a BYE containing
  From indicating value PX_UE_A_SIP_URI,
  To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
  CallId indicating value PX_UE_A_CALLID,
  Via indicating value PX_UE_A_VIA,
  Route indicating value PX_UE_A_SERVICE_ROUTE
  from the UE_A entity
  }
}	

TP Id	TP_GM_PCSCF_EMC_CANCEL_01
Test Objective	Verify that the P-CSCF successfully processes a CANCEL during Emergency Call establishment.
Reference	ETSI TS 124 229 [1], clauses 5.1.3 and 6.1
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the UE_A isEmergencyAttachedTo the EPC_A and
the UE_A isEmergencyRegisteredTo the IMS_A and
the UE_A hasAchievedInitialEmergencyINVITE
  }	

Expected Behaviour	

ensure that {
  when {
  the UE_A isRequestedToSend a CANCEL
  }
  then {
  the IMS_P_CSCF_A receives a CANCEL containing
  From indicating value PX_UE_A_SIP_URI,
  To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
  CallId indicating value PX_UE_A_CALLID,
  Via indicating value PX_UE_A_VIA,
  Route indicating value PX_UE_A_SERVICE_ROUTE
  from the UE_A entity
  }
}	

TP Id	TP_GM_PCSCF_ECO_200OK_BYE_01
Test Objective	Verify that the P-CSCF successfully processes a 200 (OK) BYE (Originating Leg).
Reference	ETSI TS 124 229 [1], clauses 5.1.5 and 6.1
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE

Initial Conditions

```
with {
the UE_A isEmergencyAttachedTo the EPC_A and
the UE_A isEmergencyRegisteredTo the IMS_A
        }
```

Expected Behaviour

```
ensure that {
    when {
        the IMS_P_CSCF_A sends a 200_Ok containing
            From indicating value PX_PSAP_SIP_URI,
            To indicating value PX_UE_A_SIP_URI,
            CallId indicating value PX_PSAP_CALLID,
            Via indicating value PX_PSAP_VIA,
            Route indicating value PX_PSAP_SERVICE_ROUTE
        to the IMS_E_CSCF entity
    }
    then {
        the IMS_P_CSCF_A sends a 200_Ok containing
            From indicating value PX_PSAP_SIP_URI,
            To indicating value PX_UE_A_SIP_URI,
            CallId indicating value PX_PSAP_CALLID,
            Via indicating value PX_PSAP_VIA,
            Route indicating value PX_PSAP_SERVICE_ROUTE,
            not PChargingVector,
            not PChargingFunctionAddresses,
            not PPreferredIdentity
        to the UE_A entity
    }
}
```

TP Id	TP_GM_PCSCF_ECO_200OK_BYE_02
Test Objective	Verify that the P-CSCF successfully processes a 200 (OK) BYE (Terminating Leg).
Reference	ETSI TS 124 229 [1], clauses 5.1.5 and 6.1
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE

Initial Conditions

```
with {
the UE_A isEmergencyAttachedTo the EPC_A and
the UE_A isEmergencyRegisteredTo the IMS_A
        }
```

Expected Behaviour

```
ensure that {
    when {
        the IMS_P_CSCF_A receives a 200_Ok containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_PSAP_SIP_URI,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_UE_A_VIA,
            Route indicating value PX_UE_A_SERVICE_ROUTE,
            not PChargingVector,
            not PChargingFunctionAddresses,
            not PPreferredIdentity
        from the UE_A entity
    }
    then {
        the IMS_P_CSCF_A sends a 200_Ok containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_PSAP_SIP_URI,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_UE_A_VIA,
            Route indicating value PX_UE_A_SERVICE_ROUTE
        to the IMS_E_CSCF entity
    }
}
```

TP Id	TP_GM_PCSCF_EMS_200OK_CANCEL_01
Test Objective	Verify that the P-CSCF successfully processes a 200 (OK) CANCEL (Originating Leg).
Reference	ETSI TS 124 229 [1], clauses 5.1.3 and 6.1
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the UE_A isAttachedTo the EPC_A and
the UE_A isRegisteredTo the IMS_A
}	

Expected Behaviour	

ensure that {
when {
the UE_A isRequestedToSend a CANCEL
}
then {
the IMS_P_CSCF_A receives a 200_Ok containing
not PChargingVector,
not PChargingFunctionAddresses,
not PPreferredIdentity
from the IMS_E_CSCF entity
}
}	

TP Id	TP_GM_PCSCF_EMC_487INVITE_01
Test Objective	Verify that the P-CSCF successfully processes a 487 INVITE (Request Terminated) (Originating Leg).
Reference	ETSI TS 124 229 [1], clauses 5.1.3 and 6.1
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the UE_A isAttachedTo the EPC_A and
the UE_A isRegisteredTo the IMS_A
}	

Expected Behaviour	

ensure that {
when {
the UE_A isRequestedToSend an CANCEL
}
then {
the IMS_P_CSCF_A sends a 487_INVITE containing
From indicating value PX_PSAP_SIP_URI,
To indicating value PX_UE_A_SIP_URI,
CallId indicating value PX_PSAP_CALLID,
Via indicating value PX_PSAP_VIA,
Route indicating value PX_PSAP_SERVICE_ROUTE
to the UE_A entity
}
}	

7.4 Cx interface

TP Id	TP_CX_HSS_ECO_UAA_01
Test Objective	Verify that the IUT successfully processes all mandatory AVPs in a UA-Request received due to first UE emergency registration and sends UA-Answer.
Reference	ETSI TS 129 228 [3], clause 6.1.1 and Tables 6.1.1.1 and 6.1.1.2 ETSI TS 129 229 [4], clauses 6.1.1 and 6.1.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the UE_A not isEmergencyRegisteredTo the IMS_A
}	

Expected Behaviour

ensure that {
  when {
  the IMS_I_CSCF_A sends a UAR containing
  Session_ID_AVP
  Vendor_Specific_Application_Id_AVP
  Auth_Session_State_AVP
  indicating value NO_STATE_MAINTAINED,
  Origin_Host_AVP
  Origin_Realm_AVP
  Public_Identity_AVP
  Visited_Network_Identifier_AVP
  User_Authorization_Type_AVP
  indicating value REGISTRATION,
  User_Name_AVP
  Destination_Host_AVP
  Destination_Realm_AVP
  UAR_Flags_AVP indicating value '1'
  to the IMS_HSS_A entity
  }
  then {
  the IMS_HSS_A sends the UAA containing
  Session_ID_AVP,
  Vendor_Specific_Application_Id_AVP,
  Auth_Session_State_AVP,
  Origin_Host_AVP,
  Origin_Realm_AVP,
  not Result_Code_AVP
  Experimental_Result_AVP containing
  Experimental_Result_Code_AVP
  indicating value DIAMETER_FIRST_REGISTRATION
  to the IMS_I_CSCF_A entity
  }
}

TP Id	TP_CX_HSS_ECO_UAA_02
Test Objective	Verify that the IUT successfully processes all mandatory AVPs in a UA-Request received due to protected UE emergency registration and sends UA-Answer.
Reference	ETSI TS 129 228 [3], clause 6.1.1.1
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the UE_A not isEmergencyRegisteredTo the IMS_A
  }	

Expected Behaviour	

ensure that {
  when {
  the IMS_I_CSCF_A sends a UAR containing
  Public_Identity_AVP
  User_Name_AVP
  UAR_Flags_AVP indicating value '1'
  to the IMS_HSS_A entity
  }
  then {
  the IMS_HSS_A sends the UAA containing
  not Result_Code_AVP,
  Experimental_Result_AVP containing
  Experimental_Result_Code_AVP
  indicating value DIAMETER_SUBSEQUENT_REGISTRATION,
  Server_Name_AVP,
  not Server_Capabilities_AVP
  to the IMS_I_CSCF_A entity
  }
}	

TP Id	TP_CX_HSS_ECO_SAA_01
Test Objective	Verify that the IUT successfully processes all mandatory AVPs in a SA-Request received due to S-CSCF registration notification procedure when credentials not match and sends SA-Answer.
Reference	ETSI TS 129 228 [3], clause 6.1.2 ETSI TS 129 229 [4], clauses 6.1.3 and 6.1.4
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the UE_A isNotRegisteredTo the IMS_A
}	

Expected Behaviour	

ensure that {
when {
the IMS_S_CSCF_A sends a SAR containing
Session_ID_AVP,
Vendor_Specific_Application_Id_AVP,
Auth_Session_State_AVP
indicating value NO_STATE_MAINTAINED,
Origin_Host_AVP,
Origin_Realm_AVP,
Public_Identity_AVP,
not User_Name_AVP,
Destination_Realm_AVP,
Server_Name_AVP,
Server_Assignment_Type_AVP
indicating value AUTHENTICATION_FAILURE or AUTHENTICATION_TIMEOUT
User_Data_Already_Available_AVP
to the IMS_HSS_A entity
}
then {
the IMS_HSS_A sends the SAA containing
Session_ID_AVP
Vendor_Specific_Application_Id_AVP
Auth_Session_State_AVP
Origin_Host_AVP
Origin_Realm_AVP
Result_Code_AVP
indicating value DIAMETER_SUCCESS
User_Data AVP
Charging_Information_AVP
to the IMS_S_CSCF_A entity
}
}	

7.5 Mw, Mi, Mm, Ml, Mx interfaces

7.5.1 Mw interface at P-CSCF

TP Id	TP_MW_PCSCF_ECO_REGISTER_01
Test Objective	Verify that the P-CSCF successfully processes a first emergency registration (Successful).
Reference	ETSI TS 124 229 [1], clauses 5.2.2.1 and 6.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the UE_A isEmergencyAttachedTo the EPC_A and
the UE_A not isRegisteredTo the IMS_A
}	

Expected Behaviour

```
ensure that {
    when {
        the IMS_P_CSCF_A receives a REGISTER containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_UE_A_SIP_URI,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_UE_A_VIA,
            Contact indicating value "sos"
        from the UE_A entity
    }
    then {
        the IMS_P_CSCF_A sends a REGISTER containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_UE_A_SIP_URI,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_UE_A_VIA,
            Path indicating value PX_P_CSCF_A_SIP_URI,
            PChargingVector containing
                icid indicating value PX_TO_BE_DEFINED,
            PVisitedNetworkID indicating value PX_TO_BE_DEFINED,
            Require indicating value "path",
            Supported indicating value "path",
            Contact indicating value "sos"
            to the IMS_I_CSCF_A entity
        and the IMS_P_CSCF_A sends an 401_Unauthorized containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_UE_A_SIP_URI,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_UE_A_VIA,
            Path,
            Warning,
            PAccessNetworkInfo,
            WwwAuthenticate containing
                Digest,
                Realm indicating value PX_UE_A_REALM,
                Algorithm indicating value PX_UE_A_AUTH_ALG,
                Nonce indicating value "not empty",
                qop indicating value "auth"
        to the UE_A entity
    }
}
```

TP Id	TP_MW_PCSCF_ECO_REGISTER_02
Test Objective	Verify that the P-CSCF successfully processes a full emergency registration (Successful).
Reference	ETSI TS 124 229 [1], clauses 5.2.2.1 and 6.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE

Initial Conditions

```
with {
the UE_A isEmergencyAttachedTo the EPC_A and
the UE_A not isRegisteredTo the IMS_A and
the UE_A hasAchievedFirstREGISTER
        }
```

Expected Behaviour

```
ensure that {
    when {
        the IMS_P_CSCF_A receives a REGISTER containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_UE_A_SIP_URI,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_UE_A_VIA,
            Authorization containing
                Authentication_Scheme indicating value PX_TO_BE_DEFINED,
                Authentication_URI indicating value PX_TO_BE_DEFINED,
                Username indicating value PX_UE_A_USERNAME,
                Realm indicating value PX_UE_A_REALM,
                Algorithm indicating value PX_UE_A_AUTH_ALG,
                Nonce indicating value "not empty",
                qop indicating value "auth",
            Contact indicating value "sos"
        from the UE_A entity
    }
    then {
        the IMS_P_CSCF_A sends a REGISTER containing
```

```
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_UE_A_SIP_URI,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_UE_A_VIA,
            Authorization containing
                Authentication_Scheme indicating value PX_TO_BE_DEFINED,
                Authentication_URI indicating value PX_TO_BE_DEFINED,
                Username indicating value PX_UE_A_USERNAME,
                Realm indicating value PX_UE_A_REALM,
                Algorithm indicating value PX_UE_A_AUTH_ALG,
                Nonce indicating value "not empty",
                qop indicating value "auth",
            PChargingVector,
            Contact indicating value "sos"
        to the IMS_I_CSCF_A entity
        and the IMS_P_CSCF_A sends an 200_Ok containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_UE_A_SIP_URI,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_UE_A_VIA,
            AuthenticationInfo,
            PAccessNetworkInfo,
            PAssociatedURI indicating value PX_UE_A_SIP_URI,
            PChargingVector,
               orig_ioi_parameter
                   indicating value "Operator Identifier Of ImsA" ,
               term_ioi_parameter
                   indicating value "Operator Identifier Of ImsB"
            Path,
            ServiceRoute
        to the UE_A entity
    }
}
```

TP Id	TP_MW_PCSCF_ECO_REGISTER_03
Test Objective	Verify that the P-CSCF rejects invalid credentials within registration (Unsuccessful).
Reference	ETSI TS 124 229 [1], clause 5.2.2.1
Configuration	CF_VoLTE_RMI_ES
PICS Selection	NONE
Initial Conditions	

```
with {
the UE_A isAttachedTo the EPC_B and
the UE_A isNotRegisteredTo the IMS_B and
the UE_B isNotRegisteredTo the IMS_B and
the UE_A hasAchievedFirstREGISTER
        }
```

Expected Behaviour

```
ensure that {
    when {
        the IMS_P_CSCF_B receives a REGISTER containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_UE_A_SIP_URI,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_UE_A_VIA,
            Authorization indicating value "invalid credentials"
        from the UE_A entity
    }
    then {
        the IMS_P_CSCF_B sends a REGISTER containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_UE_A_SIP_URI,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_UE_A_VIA,
            Authorization indicating value "invalid credentials",
            PChargingVector,
            PVisitedNetwork
        to the IMS_I_CSCF_B entity
        and the IMS_P_CSCF_B sends an 403_Forbidden containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_UE_A_SIP_URI,
            CallId indicating value PX_UE_A_CALLID
        to the UE_A entity
    }
}
```

TP Id	TP_MW_PCSCF_ECO_INVITE_01
Test Objective	Verify that the P-CSCF successfully processes an initial INVITE from an unregistered UE.
Reference	ETSI TS 124 229 [1], clauses 5.2.10.2 and 5.2.6.3.3
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

```
with {
the UE_A isAttachedTo the EPC_A and
the UE_A not isRegisteredTo the IMS_A and
the UE_A not isEmergencyRegisteredTo the IMS_A
        }
```

Expected Behaviour

```
ensure that {
    when {
        the IMS_P_CSCF_A receives an INVITE containing
            From indicating value "Anonymous",
            To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_UE_A_VIA,
            Route indicating value PX_UE_A_SERVICE_ROUTE,
            MessageBody
        from the UE_A entity
    }
    then {
        the IMS_P_CSCF_A sends an INVITE containing
            From indicating value "Anonymous",
            To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_P_CSCF_A_VIA,
            Route indicating value PX_E_CSCF_SERVICE_ROUTE,
            MessageBody
         to the IMS_E_CSCF entity
    }
}
```

TP Id	TP_MW_PCSCF_ECO_INVITE_02
Test Objective	Verify that the P-CSCF successfully processes an initial INVITE from an emergency registered UE.
Reference	ETSI TS 124 229 [1], clauses 5.2.10.3 and 5.2.6.3.3
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

```
with {
the UE_A isEmergencyAttachedTo the EPC_A and
the UE_A isEmergencyRegisteredTo the IMS_A
        }
```

Expected Behaviour

```
ensure that {
    when {
        the IMS_P_CSCF_A receives an INVITE containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_UE_A_VIA,
            Route indicating value PX_UE_A_SERVICE_ROUTE,
            PPreferredIdentity,
            MessageBody
        from the UE_A entity
    }
    then {
        the IMS_P_CSCF_A sends an INVITE containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_P_CSCF_A_VIA,
            Route indicating value PX_E_CSCF_SERVICE_ROUTE,
            PAssertedIdentity,
            MessageBody
         to the IMS_E_CSCF entity
    }
}
```

TP Id	TP_MW_PCSCF_ECO_INVITE_03
Test Objective	Verify that the P-CSCF successfully processes an initial INVITE from a registered but not emergency registered UE.
Reference	ETSI TS 124 229 [1], clauses 5.2.10.4 and 5.2.6.3.3
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

```
with {
the UE_A isAttachedTo the EPC_A and
the UE_A isRegisteredTo the IMS_A and
the UE_A not isEmergencyRegisteredTo the IMS_A
        }
```

Expected Behaviour

```
ensure that {
    when {
        the IMS_P_CSCF_A receives an INVITE containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_UE_A_VIA,
            Route indicating value PX_UE_A_SERVICE_ROUTE,
            PPreferredIdentity,
            MessageBody
        from the UE_A entity
    }
    then {
        the IMS_P_CSCF_A sends an INVITE containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_P_CSCF_A_VIA,
            Route indicating value PX_E_CSCF_SERVICE_ROUTE,
            PAssertedIdentity,
            MessageBody
         to the IMS_E_CSCF entity
    }
}
```

TP Id	TP_MW_PCSCF_ECO_INVITE_04
Test Objective	Verify that the P-CSCF rejects an initial INVITE from a not emergency registered UE if the IM CN subsystem of the P-CSCF is not capable to handle emergency sessions.
Reference	ETSI TS 124 229 [1], clauses 5.2.10.5
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

```
with {
the UE_A isAttachedTo the EPC_A and
the UE_A not isRegisteredTo the IMS_A and
the UE_A not isEmergencyRegisteredTo the IMS_A
        }
```

Expected Behaviour

ensure that {
when {
the IMS_P_CSCF_A receives an INVITE containing
From indicating value "Anonymous",
To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
CallId indicating value PX_UE_A_CALLID,
Via indicating value PX_UE_A_VIA,
Route indicating value PX_UE_A_SERVICE_ROUTE,
MessageBody
from the UE_A entity
}
then {
the IMS_P_CSCF_A sends a 380_AlternativeService containing
From indicating value PX_UE_A_SIP_URI,
To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
CallId indicating value PX_UE_A_CALLID,
Via indicating value PX_P_CSCF_A_VIA,
PAssertedIdentity,
MessageBody containing
XML containing
Version indicating value "1",
Type_child indicating value "emergency",
Reason_child,
Action_child
to the UE_A entity
}
}

TP Id	TP_MW_PCSCF_ECO_INVITE_05
Test Objective	Verify that the E-CSCF successfully processes a callback INVITE from PSAP towards P-CSCF.
Reference	ETSI TS 124 229 [1], clauses 5.2.10.3 and 5.2.6.3.3
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the UE_A isEmergencyAttachedTo the EPC_A and
the UE_A isEmergencyRegisteredTo the IMS_A
}	

Expected Behaviour	

ensure that {
when {
the IMS_P_CSCF_A receives an INVITE containing
From indicating value PX_PSAP_SIP_URI,
To indicating value PX_UE_A_SIP_URI,
CallId indicating value PX_PSAP_CALLID,
Via indicating value PX_PSAP_VIA,
Route indicating value PX_P_CSCF_SERVICE_ROUTE,
PAssertedIdentity,
MessageBody
from the IMS_E_CSCF entity
}
then {
the IMS_P_CSCF_A sends an INVITE containing
From indicating value PX_PSAP_SIP_URI,
To indicating value PX_UE_A_SIP_URI,
CallId indicating value PX_PSAP_CALLID,
Via indicating value PX_P_CSCF_A_VIA,
Route indicating value PX_UE_A_SERVICE_ROUTE,
PPreferredIdentity,
MessageBody
to the UE_A entity
}
}	

TP Id	TP_MW_PCSCF_ECO_480INVITE_01
Test Objective	Verify that the P-CSCF rejects an initial INVITE from an emergency registered UE if the E-CSCF informs the P-CSCF that Emergency Services are currently not available.
Reference	ETSI TS 124 229 [1], clause 5.2.10.5
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE

Initial Conditions

```
with {
the UE_A isAttachedTo the EPC_A and
the UE_A isRegisteredTo the IMS_A and
the UE_A isEmergencyRegisteredTo the IMS_A and
the UE_A hasAchievedInitialEmergencyINVITE
        }
```

Expected Behaviour

```
ensure that {
    when {
        the IMS_P_CSCF_A receives a 480_INVITE containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_E_CSCF_VIA,
            Route indicating value PX_E_CSCF_SERVICE_ROUTE
        from the IMS_E_CSCF entity
    }
    then {
        the IMS_P_CSCF_A sends a 380_AlternativeService containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_P_CSCF_A_VIA,
            PAssertedIdentity,
            MessageBody containing
                XML containing
                    Version indicating value "1",
                    Type_child indicating value "emergency",
                    Reason_child,
                    Action_child
         to the UE_A entity
    }
}
```

TP Id	TP_MW_PCSCF_ECO_380INVITE_01
Test Objective	Verify that the P-CSCF rejects an initial INVITE from an emergency registered UE if the IMS is not capable or does not handle emergency sessions.
Reference	ETSI TS 124 229 [1], clause 5.2.10.5
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE

Initial Conditions

```
with {
the UE_A isAttachedTo the EPC_A and
the UE_A isRegisteredTo the IMS_A
        }
```

Expected Behaviour

```
ensure that {
    when {
        the IMS_P_CSCF_A receives a INVITE containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_E_CSCF_VIA,
            Route indicating value PX_E_CSCF_SERVICE_ROUTE
        from the UE_A entity
    }
    then {
        the IMS_P_CSCF_A sends a 380_AlternativeService containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_P_CSCF_A_VIA,
            PAssertedIdentity,
            MessageBody containing
                XML containing
                    Version indicating value "1",
                    Type_child indicating value "emergency",
```

```
                    Reason_child,
                    Action_child
         to the UE_A entity
    }
}
```

TP Id	TP_MW_PCSCF_ECO_380INVITE_02
Test Objective	Verify that the P-CSCF rejects an initial INVITE from an emergency registered UE if received Request-URI is wrong - not in accordance with IETF RFC 5031.
Reference	ETSI TS 124 229 [1], clauses 5.2.10.4 and 5.2.10.5 IETF RFC 5031 [16]
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

```
with {
the UE_A isAttachedTo the EPC_A and
the UE_A isRegisteredTo the IMS_A
        }
```

Expected Behaviour

```
ensure that {
    when {
        the IMS_P_CSCF_A receives a INVITE containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_SIP_WRONG_EMERGENCY_SERVICE_URN,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_E_CSCF_VIA,
            Route indicating value PX_E_CSCF_SERVICE_ROUTE
        from the UE_A entity
    }
    then {
        the IMS_P_CSCF_A sends a 380_AlternativeService containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
            CallId indicating value PX_UE_A_CALLID,
            Content_type,
            Via indicating value PX_P_CSCF_A_VIA,
            PAssertedIdentity,
            MessageBody containing
                XML containing
                    Version indicating value "1",
                    Type_child indicating value "emergency",
                    Reason_child,
                    Action_child
         to the UE_A entity
    }
}
```

TP Id	TP_MW_PCSCF_ECO_BYE_01
Test Objective	Verify that the P-CSCF successfully processes a BYE for an emergency call.
Reference	ETSI TS 124 229 [1], clauses 5.1.6.9, 5.4.5.2 and 6.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

```
with {
the UE_A isAttachedTo the EPC_A and
the UE_A isRegisteredTo the IMS_A and
the UE_A not isEmergencyRegisteredTo the IMS_A and
the UE_A previouslyEstablishedEmergencyCallWith the PSAP
        }
```

Expected Behaviour

```
ensure that {
    when {
        the IMS_P_CSCF_A receives an BYE containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_UE_A_VIA,
            Route indicating value PX_UE_A_SERVICE_ROUTE
        from the UE_A entity
    }
    then {
        the IMS_P_CSCF_A sends an BYE containing
```

```
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_UE_A_VIA,
            Route indicating value PX_UE_A_SERVICE_ROUTE
        to the IMS_E_CSCF entity
    }
}
```

TP Id	TP_MW_PCSCF_EMC_CANCEL_01
Test Objective	Verify that the P-CSCF successfully processes a CANCEL during Emergency Call establishment.
Reference	ETSI TS 124 229 [1], clauses 5.1.3 and 6.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

```
with {
the UE_A isEmergencyAttachedTo the EPC_A and
the UE_A isEmergencyRegisteredTo the IMS_A and
the UE_A hasAchievedInitialEmergencyINVITE and
the UE_A isRequestedToSend a CANCEL
        }
```

Expected Behaviour

```
ensure that {
    when {
        the IMS_P_CSCF_A receives an CANCEL containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_UE_A_VIA,
            Route indicating value PX_UE_A_SERVICE_ROUTE
        from the UE_A entity
    }
    then {
        the IMS_P_CSCF_A sends an CANCEL containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_UE_A_VIA,
            Route indicating value PX_UE_A_SERVICE_ROUTE
        to the IMS_E_CSCF entity
    }
}
```

TP Id	TP_MW_PCSCF_EMC_200OK_CANCEL_01
Test Objective	Verify that the P-CSCF successfully processes a 200 (OK) CANCEL (Originating Leg).
Reference	ETSI TS 124 229 [1], clauses 5.2.7 and 6.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

```
with {
the UE_A isAttachedTo the EPC_A and
the UE_A isRegisteredTo the IMS_A
        }
```

Expected Behaviour

ensure that {
when {
the IMS_P_CSCF_A receives a 200_Ok containing
From indicating value PX_PSAP_SIP_URI,
To indicating value PX_UE_A_SIP_URI,
CallId indicating value PX_PSAP_CALLID,
Via indicating value PX_PSAP_VIA,
Route indicating value PX_PSAP_SERVICE_ROUTE
from the IMS_E_CSCF entity
}
then {
the IMS_P_CSCF_A sends a 200_Ok containing
From indicating value PX_PSAP_SIP_URI,
To indicating value PX_UE_A_SIP_URI,
CallId indicating value PX_PSAP_CALLID,
Via indicating value PX_PSAP_VIA,
Route indicating value PX_PSAP_SERVICE_ROUTE
to the UE_A entity
}
}

TP Id	TP_MW_PCSCF_EMC_487INVITE_01
Test Objective	Verify that the P-CSCF successfully processes a 487 INVITE (Request Terminated) to reject call (Originating Leg).
Reference	ETSI TS 124 229 [1], clauses 5.2.7 and 6.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the UE_A isAttachedTo the EPC_A and
the UE_A isRegisteredTo the IMS_A and
the UE_A isRequestedToSend a CANCEL
}	

Expected Behaviour	

ensure that {
when {
the IMS_P_CSCF_A receives a 487_INVITE containing
From indicating value PX_PSAP_SIP_URI,
To indicating value PX_UE_A_SIP_URI,
CallId indicating value PX_PSAP_CALLID,
Via indicating value PX_PSAP_VIA,
Route indicating value PX_PSAP_SERVICE_ROUTE
from the IMS_E_CSCF entity
}
then {
the IMS_P_CSCF_A sends a 487_INVITE containing
From indicating value PX_PSAP_SIP_URI,
To indicating value PX_UE_A_SIP_URI,
CallId indicating value PX_PSAP_CALLID,
Via indicating value PX_PSAP_VIA,
Route indicating value PX_PSAP_SERVICE_ROUTE
to the UE_A entity
}
}	

TP Id	TP_MW_PCSCF_NGC_INFO_01
Test Objective	Verify that the P-CSCF sends an INFO request demanding a transfer of updated MSD.
Reference	ETSI TS 124 229 [1], clause 5.1.6.11.3
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the UE_A isAttachedTo the EPC_A and
the UE_A isRegisteredTo the IMS_A and
the UE_A isEmergencyRegisteredTo the IMS_A and
the UE_A previouslyEstablishedEmergencyCallWith the PSAP
}	

Expected Behaviour

ensure that {
  when {
  the IMS_P_CSCF_A receives a INFO containing "Request transfer of updated MSD"
  from the IMS_E_CSCF entity
  }
  then {
  the IMS_P_CSCF_A sends a INFO containing
  From indicating value PX_PSAP_SIP_URI,
  To indicating value PX_UE_A_SIP_URI,
  CallId indicating value PX_PSAP_CALLID,
  Via indicating value PX_PSAP_VIA,
  Route indicating value PX_PSAP_SERVICE_ROUTE,
  InfoPackage indicating value "EmergencyCallData.eCall.MSD",
  ContentDisposition indicating value "Info-Package",
  MessageBody containing
  MIME indicating value "application/EmergencyCallData.Control+xml",
  request containing
  action indicating value "send-data",
  datatype indicating value "eCall.MSD",
  ContentDisposition indicating value "By-Reference"
  to the UE_A entity
  }
}

7.5.2 Mw interface at I-CSCF

TP Id	TP_MW_ICSCF_ECO_REGISTER_01
Test Objective	Verify that the I-CSCF successfully processes a first registration (Successful).
Reference	ETSI TS 124 229 [1], clauses 5.4.1.1 and 6.3
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the UE_A isEmergencyAttachedTo the EPC_A and
the UE_A not isRegisteredTo the IMS_A
  }	

Expected Behaviour	

ensure that {
  when {
  the IMS_I_CSCF_A receives a REGISTER containing
  From indicating value PX_UE_A_SIP_URI,
  To indicating value PX_UE_A_SIP_URI,
  CallId indicating value PX_UE_A_CALLID,
  Via indicating value PX_UE_A_VIA,
  Contact indicating value "sos"
  from the IMS_P_CSCF_A entity
  }
  then {
  the IMS_I_CSCF_A sends an 401_Unauthorized containing
  From indicating value PX_UE_A_SIP_URI,
  To indicating value PX_UE_A_SIP_URI,
  CallId indicating value PX_UE_A_CALLID,
  Via indicating value PX_UE_A_VIA,
  Path,
  Warning,
  PAccessNetworkInfo,
  WwwAuthenticate containing
  Digest,
  Realm indicating value PX_UE_A_REALM,
  Algorithm indicating value PX_UE_A_AUTH_ALG,
  Nonce indicating value "not empty",
  qop indicating value "auth"
  to the IMS_S_CSCF_A entity
  }
}	

TP Id	TP_MW_ICSCF_ECO_REGISTER_02
Test Objective	Verify that the I-CSCF successfully processes a full registration (Successful).
Reference	ETSI TS 124 229 [1], clauses 5.4.1.1 and 6.3
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE

Initial Conditions

```
with {
the UE_A isEmergencyAttachedTo the EPC_A and
the UE_A not isRegisteredTo the IMS_A and
the UE_A hasAchievedFirstREGISTER
        }
```

Expected Behaviour

```
ensure that {
    when {
        the IMS_I_CSCF_A receives a REGISTER containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_UE_A_SIP_URI,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_UE_A_VIA,
            Authorization containing
                Authentication_Scheme indicating value PX_TO_BE_DEFINED,
                Authentication_URI indicating value PX_TO_BE_DEFINED,
                Username indicating value PX_UE_A_USERNAME,
                Realm indicating value PX_UE_A_REALM,
                Algorithm indicating value PX_UE_A_AUTH_ALG,
                Nonce indicating value "not empty",
                qop indicating value "auth",
            Contact indicating value "sos"
        from the IMS_P_CSCF_A entity
    }
    then {
        the IMS_I_CSCF_A sends an 200_Ok containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_UE_A_SIP_URI,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_UE_A_VIA,
            AuthenticationInfo,
            PAccessNetworkInfo,
            PAssociatedURI indicating value PX_UE_A_SIP_URI,
            PChargingVector,
               orig_ioi_parameter
                   indicating value "Operator Identifier Of ImsA" ,
               term_ioi_parameter
                   indicating value "Operator Identifier Of ImsB"
            Path,
            ServiceRoute
        to the IMS_S_CSCF_A entity
    }
}
```

TP Id	TP_MW_ICSCF_ECO_REGISTER_03
Test Objective	Verify that the I-CSCF successfully processes and registration with invalid credentials (Unsuccessful).
Reference	ETSI TS 124 229 [1], clauses 5.2.2.1 and 6.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE

Initial Conditions

```
with {
the UE_A isEmergencyAttachedTo the EPC_A and
the UE_A not isRegisteredTo the IMS_A and
the UE_A hasAchievedFirstREGISTER
        }
```

Expected Behaviour

```
ensure that {
    when {
        the IMS_I_CSCF_A receives a REGISTER containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_UE_A_SIP_URI,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_UE_A_VIA,
            Authorization indicating value "invalid credentials"
        from the IMS_P_CSCF_A entity
    }
    then {
```

```
        the IMS_I_CSCF_A sends an 403_Forbiden containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_UE_A_SIP_URI,
            CallId indicating value PX_UE_A_CALLID
        to the IMS_P_CSCF_A entity
    }
}
```

TP Id	TP_MW_ICSCF_ECO_REGISTER_04
Test Objective	Verify that the I-CSCF processes an invalid first registration in visited network and sends 403 response (Unsuccessful).
Reference	ETSI TS 124 229 [1], clauses 5.1.6.2 and 5.2.10.5
Configuration	CF_VoLTE_RMI_ES
PICS Selection	NONE

Initial Conditions

```
with {
the UE_A isAttachedTo the EPC_B and
the UE_A isNotRegisteredTo the IMS_B
        }
```

Expected Behaviour

```
ensure that {
    when {
        the IMS_I_CSCF_B receives a REGISTER containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_UE_A_SIP_URI,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_UE_A_VIA,
            Authorization indicating value "invalid credentials"
        from the IMS_P_CSCF_B entity
    }
    then {
        the IMS_I_CSCF_B sends an 403_Forbiden containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_UE_A_SIP_URI,
            CallId indicating value PX_UE_A_CALLID
        to the IMS_P_CSCF_B entity
    }
}
```

TP Id	TP_MW_ICSCF_ECO_REGISTER_05
Test Objective	Verify that the I-CSCF processes an invalid first registration without SecurityClient header in visited network(GIBA supported) and sends 420 response (Unsuccessful).
Reference	ETSI TS 124 229 [1], clauses 5.1.6.2 and 5.2.10.5
Configuration	CF_VoLTE_RMI_ES
PICS Selection	NONE

Initial Conditions

```
with {
the UE_A isAttachedTo the EPC_B and
the UE_A isNotRegisteredTo the IMS_B
        }
```

Expected Behaviour

```
ensure that {
    when {
        the IMS_I_CSCF_B receives a REGISTER containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_UE_A_SIP_URI,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_UE_A_VIA,
            not SecurityClient
        from the IMS_P_CSCF_B entity
    }
    then {
        the IMS_I_CSCF_B sends an 420_BadExtension containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_UE_A_SIP_URI,
            CallId indicating value PX_UE_A_CALLID
        to the IMS_P_CSCF_B entity
    }
}
```

7.5.3 Mw interface at S-CSCF

None.

7.5.4 Mm, Ml, Mi, Mx interface at E-CSCF

TP Id	TP_I4_ECSCF_ECO_INVITE_01
Test Objective	Verify that the E-CSCF successfully processes an initial INVITE from the P-CSCF and routes the request to the EATF.
Reference	ETSI TS 124 229 [1], clause 5.11.2.1
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

```
with {
the IMS_E_CSCF supportsRoutingTo the IMS_EATF
        }
```

Expected Behaviour

```
ensure that {
    when {
        the IMS_E_CSCF receives an INVITE containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_P_CSCF_A_VIA,
            Route indicating value PX_E_CSCF_SERVICE_ROUTE,
            PAssertedIdentity,
            Contact containing
               instanceid_feature_tag
                  indicating value IMEIURN,
            MessageBody
        from the IMS_P_CSCF_A entity
    }
    then {
        the IMS_E_CSCF sends an INVITE containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_E_CSCF_VIA,
            Route indicating value PX_EATF_SERVICE_ROUTE,
            Route indicating value PX_E_CSCF_SERVICE_ROUTE_EATF,
            PChargingVector containing
               not term_ioi_parameter,
               orig_ioi_parameter
                   indicating value "Operator Identifier Of ImsA",
            MessageBody
         to the IMS_EATF entity
    }
}
```

TP Id	TP_ML_ECSCF_ECO_INVITE_01
Test Objective	Verify that the E-CSCF successfully processes an initial INVITE from the P-CSCF and routes the request to the LRF.
Reference	ETSI TS 124 229 [1], clause 5.11.3
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

```
with {
the IMS_E_CSCF supportsRoutingTo the IMS_LRF
        }
```

Expected Behaviour

```
ensure that {
    when {
        the IMS_E_CSCF receives an INVITE containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_P_CSCF_A_VIA,
            Route indicating value PX_E_CSCF_SERVICE_ROUTE,
            PAssertedIdentity,
            MessageBody
        from the IMS_P_CSCF_A entity
    }
    then {
        the IMS_E_CSCF sends an INVITE containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_E_CSCF_VIA,
            Route indicating value PX_LRF_SERVICE_ROUTE,
            PChargingVector containing
               not term_ioi_parameter,
               orig_ioi_parameter
                   indicating value "Operator Identifier Of ImsA",
            MessageBody
         to the IMS_LRF entity
    }
}
```

TP Id	TP_MM_ECSCF_ECO_INVITE_01
Test Objective	Verify that the E-CSCF successfully processes an initial INVITE from the P-CSCF and routes the request to the PSAP in the IM CN subsystem of own network.
Reference	ETSI TS 124 229 [1], clause 5.11.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE

Initial Conditions

```
with {
the IMS_E_CSCF supportsRoutingTo the IM_CN
        }
```

Expected Behaviour

```
ensure that {
    when {
        the IMS_E_CSCF receives an INVITE containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_P_CSCF_A_VIA,
            Route indicating value PX_E_CSCF_SERVICE_ROUTE,
            PAssertedIdentity,
            MessageBody
        from the IMS_P_CSCF_A entity
    }
    then {
        the IMS_E_CSCF sends an INVITE containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_E_CSCF_VIA,
            Route indicating value PX_PSAP_SERVICE_ROUTE_IM_CN,
            RecordRoute PX_E_CSCF_SERVICE_ROUTE,
            PChargingVector,
            not PChargingFunctionAddresses,
            MessageBody
         to the IM_CN entity
    }
}
```

TP Id	TP_MM_ECSCF_ECO_INVITE_02
Test Objective	Verify that the E-CSCF successfully processes an initial INVITE from the P-CSCF and routes the request to the PSAP in the IM CN subsystem of own network and includes the LRF provided URI in the Route header.
Reference	ETSI TS 124 229 [1], clauses 5.11.2 and 5.11.3
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE

Initial Conditions

```
with {
the IMS_E_CSCF supportsRoutingTo the IMS_LRF and
the IMS_E_CSCF hasSentINVITETo the IMS_LRF and
the IMS_E_CSCF supportsRoutingTo the IM_CN
        }
```

Expected Behaviour

```
ensure that {
    when {
        the IMS_E_CSCF receives an r_3xx_Any containing
            Contact indicating value LRF_provided_SIP_URI
        from the IMS_LRF entity
    }
    then {
        the IMS_E_CSCF sends an INVITE containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_E_CSCF_VIA,
            Route indicating value LRF_provided_SIP_URI,
            RecordRoute PX_E_CSCF_SERVICE_ROUTE,
            not PChargingFunctionAddresses,
            PChargingVector,
            MessageBody
         to the IM_CN entity
    }
}
```

TP Id	TP_MM_ECSCF_ECO_INVITE_03
Test Objective	Verify that the E-CSCF successfully processes and callback INVITE from PSAP over the IM CN subsystem of own network and routes the request to the P-CSCF.
Reference	ETSI TS 123 167 [15], clause 4.1 item 12
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE

Initial Conditions

```
with {
the IMS_E_CSCF supportsRoutingTo the IM_CN
        }
```

Expected Behaviour

```
ensure that {
    when {
        the IMS_E_CSCF receives an INVITE containing
            From indicating value PX_PSAP_SIP_URI,
            To indicating value PX_UE_A_SIP_URI,
            CallId indicating value PX_PSAP_CALLID,
            Via indicating value PX_P_CSCF_A_VIA,
            Route indicating value PX_E_CSCF_SERVICE_ROUTE,
            PAssertedIdentity,
            MessageBody
        from the IM_CN entity
    }
    then {
        the IMS_E_CSCF sends an INVITE containing
            From indicating value PX_PSAP_SIP_URI,
            To indicating value PX_UE_A_SIP_URI,
            CallId indicating value PX_PSAP_CALLID,
            Via indicating value PX_E_CSCF_VIA,
            Route indicating value PX_PSAP_SERVICE_ROUTE_IM_CN,
            RecordRoute PX_E_CSCF_SERVICE_ROUTE,
            PChargingVector,
            not PChargingFunctionAddresses,
            MessageBody
         to the IMS_P_CSCF_A entity
    }
}
```

TP Id	TP_MX_ECSCF_ECO_INVITE_01
Test Objective	Verify that the E-CSCF successfully processes an initial INVITE from the P-CSCF and routes the request to the IBCF for a PSAP in another network.
Reference	ETSI TS 124 229 [1], clause 5.11.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

```
with {
the IMS_E_CSCF supportsRoutingTo the IMS_IBCF_A
        }
```

Expected Behaviour

```
ensure that {
    when {
        the IMS_E_CSCF receives an INVITE containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_P_CSCF_A_VIA,
            Route indicating value PX_E_CSCF_SERVICE_ROUTE,
            PAssertedIdentity,
            MessageBody
        from the IMS_P_CSCF_A entity
    }
    then {
        the IMS_E_CSCF sends an INVITE containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_E_CSCF_VIA,
            Route indicating value PX_IBCF_A_SERVICE_ROUTE,
            Route indicating value PX_PSAP_SERVICE_ROUTE_IBCF,
            RecordRoute PX_E_CSCF_SERVICE_ROUTE,
            PChargingVector containing
               not term_ioi_parameter,
               orig_ioi_parameter
                   indicating value "Operator Identifier Of ImsA",
            MessageBody
         to the IMS_IBCF_A entity
    }
}
```

TP Id	TP_MX_ECSCF_ECO_INVITE_02
Test Objective	Verify that the E-CSCF successfully processes an initial INVITE from the P-CSCF and routes the request to the IBCF for a PSAP in another network and includes the LRF provided URI in the Route header.
Reference	ETSI TS 124 229 [1], clause 5.11.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

```
with {
the IMS_E_CSCF supportsRoutingTo the IMS_LRF and
the IMS_E_CSCF hasSentINVITETo the IMS_LRF and
the IMS_E_CSCF supportsRoutingTo the IMS_IBCF_A
        }
```

Expected Behaviour

```
ensure that {
    when {
        the IMS_E_CSCF receives an r_3xx_Any containing
            Contact indicating value LRF_provided_SIP_URI
        from the IMS_LRF entity
    }
    then {
        the IMS_E_CSCF sends an INVITE containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_E_CSCF_VIA,
            Route indicating value PX_IBCF_A_SERVICE_ROUTE,
            Route indicating value LRF_provided_SIP_URI,
            RecordRoute PX_E_CSCF_SERVICE_ROUTE,
            PChargingVector containing
               not term_ioi_parameter,
               orig_ioi_parameter
                   indicating value "Operator Identifier Of ImsA",
            MessageBody
         to the IMS_IBCF_A entity
    }
}
```

TP Id	TP_MX_ECSCF_ECO_INVITE_03
Test Objective	Verify that the E-CSCF successfully processes a callback INVITE from the PSAP in another network over the IBCF and routes the request to the P-CSCF.
Reference	ETSI TS 123 167 [15], clause 4.1 item 12
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE

Initial Conditions

```
with {
the IMS_E_CSCF supportsRoutingTo the IMS_IBCF_A
        }
```

Expected Behaviour

```
ensure that {
    when {
        the IMS_E_CSCF receives an INVITE containing
            From indicating value PX_PSAP_SIP_URI,
            To indicating value PX_UE_A_SIP_URI,
            CallId indicating value PX_PSAP_CALLID,
            Via indicating value PX_P_CSCF_A_VIA,
            Route indicating value PX_E_CSCF_SERVICE_ROUTE,
            PAssertedIdentity,
            MessageBody
        from the IMS_IBCF_A entity
    }
    then {
        the IMS_E_CSCF sends an INVITE containing
            From indicating value PX_PSAP_SIP_URI,
            To indicating value PX_UE_A_SIP_URI,
            CallId indicating value PX_PSAP_CALLID,
            Via indicating value PX_E_CSCF_VIA,
            Route indicating value PX_P_SCSF_SERVICE_ROUTE_IBCF,
            RecordRoute PX_E_CSCF_SERVICE_ROUTE,
            PChargingVector containing
               not term_ioi_parameter,
               orig_ioi_parameter
                   indicating value "Operator Identifier Of ImsA",
            MessageBody
         to the IMS_P_CSCF_A entity
    }
}
```

TP Id	TP_MI_ECSCF_ECO_INVITE_01
Test Objective	Verify that the E-CSCF successfully processes an initial INVITE from the P-CSCF and routes the request to the BGCF for a PSAP in the PSTN.
Reference	ETSI TS 124 229 [1], clause 5.11.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE

Initial Conditions

```
with {
the IMS_E_CSCF supportsRoutingTo the BGCF
        }
```

Expected Behaviour

```
ensure that {
    when {
        the IMS_E_CSCF receives an INVITE containing
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_P_CSCF_A_VIA,
            Route indicating value PX_E_CSCF_SERVICE_ROUTE,
            PAssertedIdentity,
            MessageBody
        from the IMS_P_CSCF_A entity
    }
    then {
        the IMS_E_CSCF sends an INVITE containing
            RequestLine indicating value PX_PSAP_TEL_URI,
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_E_CSCF_VIA,
            Route indicating value PX_BGCF_SERVICE_ROUTE,
            RecordRoute PX_E_CSCF_SERVICE_ROUTE,
            PChargingVector containing
               not term_ioi_parameter,
               orig_ioi_parameter
                   indicating value "Operator Identifier Of ImsA",
            MessageBody
         to the IMS_BGCF_A entity
    }
}
```

TP Id	TP_MI_ECSCF_ECO_INVITE_02
Test Objective	Verify that the E-CSCF successfully processes an initial INVITE from the P-CSCF and routes the request to the BGCF for a PSAP in the PSTN and includes the LRF provided URI in the Request-URI.
Reference	ETSI TS 124 229 [1], clause 5.11.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE

Initial Conditions

```
with {
the IMS_E_CSCF supportsRoutingTo the IMS_LRF and
the IMS_E_CSCF hasSentINVITETo the IMS_LRF and
the IMS_E_CSCF supportsRoutingTo the BGCF
        }
```

Expected Behaviour

```
ensure that {
    when {
        the IMS_E_CSCF receives an r_3xx_Any containing
            Contact indicating value LRF_provided_SIP_URI
        from the IMS_LRF entity
    }
    then {
        the IMS_E_CSCF sends an INVITE containing
            RequestLine indicating value LRF_provided_SIP_URI,
            From indicating value PX_UE_A_SIP_URI,
            To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
            CallId indicating value PX_UE_A_CALLID,
            Via indicating value PX_E_CSCF_VIA,
            Route indicating value PX_BGCF_SERVICE_ROUTE,
            RecordRoute PX_E_CSCF_SERVICE_ROUTE,
            PChargingVector containing
               not term_ioi_parameter,
               orig_ioi_parameter
                   indicating value "Operator Identifier Of ImsA",
```

```
            MessageBody
          to the IMS_BGCF_A entity
    }
}
```

TP Id	TP_MI_ECSCF_ECO_INVITE_03
Test Objective	Verify that the E-CSCF successfully processes a callback INVITE from PSAP in the PSTN over BGCF and routes the request to the P-CSCF.
Reference	ETSI TS 123 167 [15], clause 4.1 item 12
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

```
with {
the IMS_E_CSCF supportsRoutingTo the BGCF
        }
```

Expected Behaviour

```
ensure that {
    when {
        the IMS_E_CSCF receives an INVITE containing
            From indicating value PX_PSAP_TEL_URI,
            To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
            CallId indicating value PX_PSAP_CALLID,
            Via indicating value PX_BGCF_VIA,
            Route indicating value PX_E_CSCF_SERVICE_ROUTE,
            PAssertedIdentity,
            MessageBody
        from the IMS_BGCF_A entity
    }
    then {
        the IMS_E_CSCF sends an INVITE containing
            RequestLine indicating value PX_UE_A_SIP_URI,
            From indicating value PX_PSAP_TEL_URI,
            To indicating value PX_UE_A_SIP_URI,
            CallId indicating value PX_PSAP_CALLID,
            Via indicating value PX_E_CSCF_VIA,
            Route indicating value PX_P_CSCD_SERVICE_ROUTE,
            RecordRoute PX_E_CSCF_SERVICE_ROUTE,
            PChargingVector containing
               not term_ioi_parameter,
               orig_ioi_parameter
                   indicating value "Operator Identifier Of ImsA",
            MessageBody
         to the IMS_P_CSCF_A entity
    }
}
```

TP Id	TP_MM_ECSCF_ECO_BYE_01
Test Objective	Verify that the E-CSCF successfully processes a BYE from the P-CSCF for an Emergency Call and routes the request to the PSAP in the IM CN subsystem of own network.
Reference	ETSI TS 124 229 [1], clause 5.11.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

```
with {
the IMS_E_CSCF supportsRoutingTo the IM_CN and
the UE_A previouslyEstablishedEmergencyCallWith the PSAP
        }
```

Expected Behaviour

ensure that {
  when {
  the IMS_E_CSCF receives a BYE containing
  From indicating value PX_UE_A_SIP_URI,
  To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
  CallId indicating value PX_UE_A_CALLID,
  Via indicating value PX_UE_A_VIA,
  Route indicating value PX_UE_A_SERVICE_ROUTE
  from the IMS_P_CSCF_A entity
  }
  then {
  the IMS_E_CSCF sends a BYE containing
  From indicating value PX_UE_A_SIP_URI,
  To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
  CallId indicating value PX_UE_A_CALLID,
  Via indicating value PX_UE_A_VIA,
  Route indicating value PX_UE_A_SERVICE_ROUTE
  to the IM_CN entity
  }
}

TP Id	TP_MM_ECSCF_ECO_BYE_02
Test Objective	Verify that the E-CSCF successfully processes a BYE from the PSAP in the IM CN subsystem for an Emergency Call and routes the request to the P-CSCF of home network.
Reference	ETSI TS 124 229 [1], clause 5.11.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the IMS_E_CSCF supportsRoutingTo the IM_CN and
the UE_A previouslyEstablishedEmergencyCallWith the PSAP
  }	

Expected Behaviour	

ensure that {
  when {
  the IMS_E_CSCF receives a BYE containing
  From indicating value PX_PSAP_SIP_URI,
  To indicating value PX_UE_A_SIP_URI,
  CallId indicating value PX_PSAP_CALLID,
  Via indicating value PX_PSAP_VIA
  from the IM_CN entity
  }
  then {
  the IMS_E_CSCF sends a BYE containing
  From indicating value PX_PSAP_SIP_URI,
  To indicating value PX_UE_A_SIP_URI,
  CallId indicating value PX_PSAP_CALLID,
  Via indicating value PX_PSAP_VIA
  to the IMS_P_CSCF_A entity
  }
}	

TP Id	TP_MX_ECSCF_ECO_BYE_01
Test Objective	Verify that the E-CSCF successfully processes a BYE from the P-CSCF for an Emergency Call and routes the request to the IBCF for a PSAP in another network.
Reference	ETSI TS 124 229 [1], clause 5.11.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the IMS_E_CSCF supportsRoutingTo the IMS_IBCF_A and
the UE_A previouslyEstablishedEmergencyCallWith the PSAP via IMS_IBCF_A
  }	

Expected Behaviour

ensure that {
when {
the IMS_E_CSCF receives a BYE containing
From indicating value PX_UE_A_SIP_URI,
To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
CallId indicating value PX_UE_A_CALLID,
Via indicating value PX_UE_A_VIA,
Route indicating value PX_UE_A_SERVICE_ROUTE
from the IMS_P_CSCF_A entity
}
then {
the IMS_E_CSCF sends a BYE containing
From indicating value PX_UE_A_SIP_URI,
To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
CallId indicating value PX_UE_A_CALLID,
Via indicating value PX_UE_A_VIA,
Route indicating value PX_UE_A_SERVICE_ROUTE
to the IMS_IBCF_A entity
}
}

TP Id	TP_MX_ECSCF_ECO_BYE_02
Test Objective	Verify that the E-CSCF successfully processes a BYE from the IBCF for a PSAP in another network for an Emergency Call and routes the request to the P-CSCF.
Reference	ETSI TS 124 229 [1], clause 5.11.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the IMS_E_CSCF supportsRoutingTo the IMS_IBCF_A and
the UE_A previouslyEstablishedEmergencyCallWith the PSAP via IMS_IBCF_A
}	

Expected Behaviour	

ensure that {
when {
the IMS_E_CSCF receives a BYE containing
From indicating value PX_PSAP_SIP_URI,
To indicating value PX_UE_A_SIP_URI,
CallId indicating value PX_PSAP_CALLID,
Via indicating value PX_PSAP_VIA
from the IMS_IBCF_A entity
}
then {
the IMS_E_CSCF sends a BYE containing
From indicating value PX_PSAP_SIP_URI,
To indicating value PX_UE_A_SIP_URI,
CallId indicating value PX_PSAP_CALLID,
Via indicating value PX_PSAP_VIA
to the IMS_P_CSCF_A entity
}
}	

TP Id	TP_MI_ECSCF_ECO_BYE_01
Test Objective	Verify that the E-CSCF successfully processes a BYE from the P-CSCF for an Emergency Call and routes the request to the BGCF for a PSAP in the PSTN.
Reference	ETSI TS 124 229 [1], clause 5.11.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the IMS_E_CSCF supportsRoutingTo the BGCF and
the UE_A previouslyEstablishedEmergencyCallWith the PSAP via IMS_BGCF_A
}	

Expected Behaviour

ensure that {
when {
the IMS_E_CSCF receives a BYE containing
From indicating value PX_UE_A_SIP_URI,
To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
CallId indicating value PX_UE_A_CALLID,
Via indicating value PX_UE_A_VIA,
Route indicating value PX_UE_A_SERVICE_ROUTE
from the IMS_P_CSCF_A entity
}
then {
the IMS_E_CSCF sends a BYE containing
From indicating value PX_UE_A_SIP_URI,
To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
CallId indicating value PX_UE_A_CALLID,
Via indicating value PX_UE_A_VIA,
Route indicating value PX_UE_A_SERVICE_ROUTE
to the IMS_BGCF_A entity
}
}

TP Id	TP_MI_ECSCF_ECO_BYE_02
Test Objective	Verify that the E-CSCF successfully processes a BYE from the BGCF for a PSAP in the PSTN for an Emergency Call and routes the request to the P-CSCF.
Reference	ETSI TS 124 229 [1], clause 5.11.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the IMS_E_CSCF supportsRoutingTo the BGCF and
the UE_A previouslyEstablishedEmergencyCallWith the PSAP via IMS_BGCF_A
}	

Expected Behaviour	

ensure that {
when {
the IMS_E_CSCF receives a BYE containing
From indicating value PX_PSAP_SIP_URI,
To indicating value PX_UE_A_SIP_URI,
CallId indicating value PX_PSAP_CALLID,
Via indicating value PX_PSAP_VIA
from the IMS_BGCF_A entity
}
then {
the IMS_E_CSCF sends a BYE containing
From indicating value PX_PSAP_SIP_URI,
To indicating value PX_UE_A_SIP_URI,
CallId indicating value PX_PSAP_CALLID,
Via indicating value PX_PSAP_VIA
to the IMS_P_CSCF_A entity
}
}	

TP Id	TP_MM_ECSCF_EMC_CANCEL_01
Test Objective	Verify that the E-CSCF successfully processes a CANCEL from the P-CSCF for an Emergency Call under establishment and routes the request to the PSAP in the IM CN subsystem of own network.
Reference	ETSI TS 124 229 [1], clause 5.11.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the IMS_E_CSCF supportsRoutingTo the IM_CN and
the UE_A hasAchievedInitialEmergencyINVITE
}	

Expected Behaviour

ensure that {
when {
the IMS_E_CSCF receives a CANCEL containing
From indicating value PX_UE_A_SIP_URI,
To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
CallId indicating value PX_UE_A_CALLID,
Via indicating value PX_UE_A_VIA,
Route indicating value PX_UE_A_SERVICE_ROUTE
from the IMS_P_CSCF_A entity
}
then {
the IMS_E_CSCF sends a CANCEL containing
From indicating value PX_UE_A_SIP_URI,
To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
CallId indicating value PX_UE_A_CALLID,
Via indicating value PX_UE_A_VIA,
Route indicating value PX_UE_A_SERVICE_ROUTE
to the IM_CN entity
}
}

TP Id	TP_MX_ECSCF_EMC_CANCEL_01
Test Objective	Verify that the E-CSCF successfully processes a CANCEL from the P-CSCF for an Emergency Call under establishment and routes the request to the IBCF for a PSAP in another network.
Reference	ETSI TS 124 229 [1], clause 5.11.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the IMS_E_CSCF supportsRoutingTo the IMS_IBCF_A and
the UE_A hasAchievedInitialEmergencyINVITE via the IMS_IBCF_A
}	

Expected Behaviour	

ensure that {
when {
the IMS_E_CSCF receives a CANCEL containing
From indicating value PX_UE_A_SIP_URI,
To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
CallId indicating value PX_UE_A_CALLID,
Via indicating value PX_UE_A_VIA,
Route indicating value PX_UE_A_SERVICE_ROUTE
from the IMS_P_CSCF_A entity
}
then {
the IMS_E_CSCF sends a CANCEL containing
From indicating value PX_UE_A_SIP_URI,
To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
CallId indicating value PX_UE_A_CALLID,
Via indicating value PX_UE_A_VIA,
Route indicating value PX_UE_A_SERVICE_ROUTE
to the IMS_IBCF_A entity
}
}	

TP Id	TP_MI_ECSCF_EMC_CANCEL_01
Test Objective	Verify that the E-CSCF successfully processes a CANCEL from the P-CSCF for an Emergency Call under establishment and routes the request to the BGCF for a PSAP in the PSTN.
Reference	ETSI TS 124 229 [1], clause 5.11.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the IMS_E_CSCF supportsRoutingTo the BGCF and
the UE_A hasAchievedInitialEmergencyINVITE the PSAP via IMS_BGCF_A
}	

Expected Behaviour

ensure that {
when {
the IMS_E_CSCF receives a CANCEL containing
From indicating value PX_UE_A_SIP_URI,
To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
CallId indicating value PX_UE_A_CALLID,
Via indicating value PX_UE_A_VIA,
Route indicating value PX_UE_A_SERVICE_ROUTE
from the IMS_P_CSCF_A entity
}
then {
the IMS_E_CSCF sends a CANCEL containing
From indicating value PX_UE_A_SIP_URI,
To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
CallId indicating value PX_UE_A_CALLID,
Via indicating value PX_UE_A_VIA,
Route indicating value PX_UE_A_SERVICE_ROUTE
to the IMS_BGCF_A entity
}
}

TP Id	TP_MM_ECSCF_ECO_480INVITE_01
Test Objective	Verify that the E-CSCF successfully processes a 480 response from the PSAP in the IM CN subsystem for an Emergency Call and routes the response to the P-CSCF of home network.
Reference	ETSI TS 124 229 [1], clause 5.11.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the IMS_E_CSCF supportsRoutingTo the IM_CN and
the UE_A previouslyEstablishedEmergencyCallWith the PSAP
}	

Expected Behaviour	

ensure that {
when {
the IMS_E_CSCF receives a 480INVITE containing
From indicating value PX_UE_A_SIP_URI,
To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
CallId indicating value PX_UE_A_CALLID,
Via indicating value PX_UE_A_VIA,
Route indicating value PX_UE_A_SERVICE_ROUTE
from the IM_CN entity
}
then {
the IMS_E_CSCF sends a 480INVITE containing
From indicating value PX_UE_A_SIP_URI,
To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
CallId indicating value PX_UE_A_CALLID,
Via indicating value PX_UE_A_VIA,
Route indicating value PX_UE_A_SERVICE_ROUTE
to the IMS_P_CSCF_A entity
}
}	

TP Id	TP_MX_ECSCF_ECO_480INVITE_01
Test Objective	Verify that the E-CSCF successfully processes a 480 response from the IBCF for a PSAP in another network for an Emergency Call and routes the response to the P-CSCF.
Reference	ETSI TS 124 229 [1], clause 5.11.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the IMS_E_CSCF supportsRoutingTo the IMS_IBCF_A and
the UE_A previouslyEstablishedEmergencyCallWith the PSAP via IMS_IBCF_A
}	

Expected Behaviour

ensure that {
when {
the IMS_E_CSCF receives a 480INVITE containing
From indicating value PX_UE_A_SIP_URI,
To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
CallId indicating value PX_UE_A_CALLID,
Via indicating value PX_UE_A_VIA,
Route indicating value PX_UE_A_SERVICE_ROUTE
from the IMS_IBCF_A entity
}
then {
the IMS_E_CSCF sends a 480INVITE containing
From indicating value PX_UE_A_SIP_URI,
To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
CallId indicating value PX_UE_A_CALLID,
Via indicating value PX_UE_A_VIA,
Route indicating value PX_UE_A_SERVICE_ROUTE
to the IMS_P_CSCF_A entity
}
}

TP Id	TP_MI_ECSCF_ECO_480INVITE_01
Test Objective	Verify that the E-CSCF successfully processes a 480 response from the BGCF for a PSAP in the PSTN for an Emergency Call and routes the response to the P-CSCF.
Reference	ETSI TS 124 229 [1], clause 5.11.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the IMS_E_CSCF supportsRoutingTo the BGCF and
the UE_A previouslyEstablishedEmergencyCallWith the PSAP via IMS_BGCF_A
}	

Expected Behaviour	

ensure that {
when {
the IMS_E_CSCF receives a 480INVITE containing
From indicating value PX_UE_A_SIP_URI,
To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
CallId indicating value PX_UE_A_CALLID,
Via indicating value PX_UE_A_VIA,
Route indicating value PX_UE_A_SERVICE_ROUTE
from the IMS_BGCF_A entity
}
then {
the IMS_E_CSCF sends a 480INVITE containing
From indicating value PX_UE_A_SIP_URI,
To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
CallId indicating value PX_UE_A_CALLID,
Via indicating value PX_UE_A_VIA,
Route indicating value PX_UE_A_SERVICE_ROUTE
to the IMS_P_CSCF_A entity
}
}	

TP Id	TP_MM_ECSCF_EMC_487INVITE_01
Test Objective	Verify that the E-CSCF successfully processes a 487 response from the PSAP in the IM CN subsystem for an Emergency Call and routes the response to the P-CSCF of home network.
Reference	ETSI TS 124 229 [1], clause 5.11.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the IMS_E_CSCF supportsRoutingTo the IM_CN and
the UE_A previouslyEstablishedEmergencyCallWith the PSAP
}	

Expected Behaviour

ensure that {
when {
the IMS_E_CSCF receives a 487INVITE containing
From indicating value PX_UE_A_SIP_URI,
To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
CallId indicating value PX_UE_A_CALLID,
Via indicating value PX_UE_A_VIA,
Route indicating value PX_UE_A_SERVICE_ROUTE
from the IM_CN entity
}
then {
the IMS_E_CSCF sends a 487INVITE containing
From indicating value PX_UE_A_SIP_URI,
To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
CallId indicating value PX_UE_A_CALLID,
Via indicating value PX_UE_A_VIA,
Route indicating value PX_UE_A_SERVICE_ROUTE
to the IMS_P_CSCF_A entity
}
}

TP Id	TP_MX_ECSCF_EMC_487INVITE_01
Test Objective	Verify that the E-CSCF successfully processes a 487 response from the IBCF for a PSAP in another network for an Emergency Call and routes the response to the P-CSCF.
Reference	ETSI TS 124 229 [1], clause 5.11.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the IMS_E_CSCF supportsRoutingTo the IMS_IBCF_A and
the UE_A previouslyEstablishedEmergencyCallWith the PSAP via IMS_IBCF_A
}	

Expected Behaviour	

ensure that {
when {
the IMS_E_CSCF receives a 487INVITE containing
From indicating value PX_UE_A_SIP_URI,
To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
CallId indicating value PX_UE_A_CALLID,
Via indicating value PX_UE_A_VIA,
Route indicating value PX_UE_A_SERVICE_ROUTE
from the IMS_IBCF_A entity
}
then {
the IMS_E_CSCF sends a 487INVITE containing
From indicating value PX_UE_A_SIP_URI,
To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
CallId indicating value PX_UE_A_CALLID,
Via indicating value PX_UE_A_VIA,
Route indicating value PX_UE_A_SERVICE_ROUTE
to the IMS_P_CSCF_A entity
}
}	

TP Id	TP_MI_ECSCF_EMC_487INVITE_01
Test Objective	Verify that the E-CSCF successfully processes a 487 response from the BGCF for a PSAP in the PSTN for an Emergency Call and routes the response to the P-CSCF.
Reference	ETSI TS 124 229 [1], clause 5.11.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the IMS_E_CSCF supportsRoutingTo the BGCF and
the UE_A previouslyEstablishedEmergencyCallWith the PSAP via IMS_BGCF_A
}	

Expected Behaviour

ensure that {
when {
the IMS_E_CSCF receives a 487INVITE containing
From indicating value PX_UE_A_SIP_URI,
To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
CallId indicating value PX_UE_A_CALLID,
Via indicating value PX_UE_A_VIA,
Route indicating value PX_UE_A_SERVICE_ROUTE
from the IMS_BGCF_A entity
}
then {
the IMS_E_CSCF sends a 487INVITE containing
From indicating value PX_UE_A_SIP_URI,
To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
CallId indicating value PX_UE_A_CALLID,
Via indicating value PX_UE_A_VIA,
Route indicating value PX_UE_A_SERVICE_ROUTE
to the IMS_P_CSCF_A entity
}
}

7.6 Rx interface

TP Id	TP_RX_PCRF_ECO_AAA_01
Test Objective	Verify that IUT after AA-Request is received due to provisioning of AF Signalling flow for emergency registration sends AA-Answer.
Reference	ETSI TS 129 214 [7], clause A.5
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the UE_A isNotAttachedTo the EPC_A and
the UE_A not isEmergencyRegisteredTo the IMS_A
}	

Expected Behaviour	

ensure that {
when {
the IMS_P_CSCF_A sends an AAR
to the EPC_PCRF_A entity
}
then {
the EPC_PCRF_A sends the AAA containing
Result_Code_AVP
indicating value DIAMETER_SUCCESS
Subscription_Id_AVP containing
Subscription_Id_Type_AVP
indicating value END_USER_IMSI,
"and/or"
User_Equipment_Info_AVP containing
User_Equipment_Info_Type
indicating value IMEISV,
User_Equipment_Info_Value
to the IMS_P_CSCF_A entity
}
}	

TP Id	TP_RX_PCSCF_ECO_AAR_01
Test Objective	Verify that IUT after 2XX_Response on Emergency REGISTER sends an AA-Request due to provisioning of AF Signalling flow.
Reference	ETSI TS 129 214 [7], clause A.5
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the UE_A isNotAttachedTo the EPC_A and
the UE_A not isEmergencyRegisteredTo the IMS_A
}	

Expected Behaviour

ensure that {
  when {
  the IMS_S_CSCF_A sends a 200_Response_REGISTER
  to the IMS_P_CSCF_A entity
  }
  then {
  the IMS_P_CSCF_A sends an AAR containing
  Framed_IPv4_Address_AVP
  indicating value "IPv4_Address of UE_A",
  "or" Framed_IPv6_Address_AVP
  indicating value "IPv6_Address of UE_A",
  AF_Requested_Data_AVP
  indicating value "EPC-level identities required",
  Service_URN_AVP
  indicating value "sos*"
  to the EPC_PCRF_A entity
  }
}

TP Id	TP_RX_PCSCF_ECO_AAR_02
Test Objective	Verify that IUT send AA-Request in case of emergency session establishment for originating side after INVITE is received.
Reference	ETSI TS 129 214 [7], clause A.5
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the UE_A isAttachedTo the EPC_A and
the UE_A isEmergencyRegisteredTo the IMS_A
  }	

Expected Behaviour	

ensure that {
  when {
  the IMS_P_CSCF_A receives an INVITE_Request_with_SDP_offer
  from the UE_A entity
  }
  then {
  the IMS_P_CSCF_A sends the AAR containing
  Framed_IPv4_Address_AVP
  indicating value "IPv4_Address of UE_A",
  "or" Framed_IPv6_Address_AVP
  indicating value "IPv6_Address of UE_A",
  Service_URN_AVP
  indicating value "sos*"
  to the EPC_PCRF_A entity
  }
}	

7.7 Gx interface

TP Id	TP_GX_PCRF_ECO_CCA_01
Test Objective	Verify that IUT when receives CC-Request for PCC Rules containing IMSI for emergency services sends a CC-Answer in case of attachment procedure.
Reference	ETSI TS 129 212 [8], clause 4.5.15.2.1
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
  the UE_A isNotAttachedTo the EPC_A and
  the UE_A isNotRegisteredTo the IMS_A
  }	

Expected Behaviour

ensure that {
  when {
  the EPC_PGW_A sends an CCR containing
  CC_Request_Type_AVP indicating value INITIAL_REQUEST
  Subscription_Id_AVP containing
  Subscription_Id_Type_AVP
  indicating value END_USER_IMSI,
  IP_CAN_Type_AVP indicating value RestrictedToEmergencyServices,
  RAT_Type_AVP,
  Called_Station_Id_AVP indicating value "Emergency_APN"
  Framed_IP_Address_AVP
  "or" Framed_IP6_IP_Address_AVP
  QoS_Information_AVP
  Default_EPS_Bearer_QoS_AVP containing
  QoS_Class_Identifier_AVP
  indicating value '5'
  Allocation_Retention_Priority_AVP containing
  Priority_Level_AVP
  Pre_emption_Capablity_AVP
  Pre_emption_Vulnerability_AVP
  to the EPC_PCRF_A entity
  }
  then {
  the EPC_PCRF_A sends the CCA containing
  Result_Code_AVP
  indicating value DIAMETER_SUCCESS
  to the EPC_PGW_A entity
  }
}

TP Id	TP_GX_PCRF_ECO_CCA_02
Test Objective	Verify that IUT when receives CC-Request for PCC Rules sends a CC-Answer in case of emergency detachment procedure.
Reference	ETSI TS 129 212 [8], clause 4.5.15.2.4
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
  the UE_A isAttachedTo the EPC_A
  }	

Expected Behaviour	

ensure that {
  when {
  the EPC_PGW_A sends an CCR containing
  CC_Request_Type_AVP
  indicating value TERMINATION_REQUEST
  to the EPC_PCRF_A entity
  }
  then {
  the EPC_PCRF_A sends the CCA containing
  Result_Code_AVP
  indicating value DIAMETER_SUCCESS
  to the EPC_PGW_A entity
  }
}	

TP Id	TP_GX_PCRF_EMC_CCA_01
Test Objective	Verify that IUT when receives CC-Request for PCC Rules containing IMEI for emergency call sends a CC-Answer in case of attachment procedure.
Reference	ETSI TS 129 212 [8], clause 4.5.15.2.1
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
  the UE_A isNotAttachedTo the EPC_A and
  the UE_A isNotRegisteredTo the IMS_A
  }	

Expected Behaviour

ensure that {
  when {
  the EPC_PGW_A sends an CCR containing
  CC_Request_Type_AVP indicating value INITIAL_REQUEST,
  User_Equipment_Info_AVP containing
  User_Equipment_Info_Type_AVP indicating value IMEISV
  User_Equipment_Info_Value_AVP,
  IP_CAN_Type_AVP indicating value RestrictedToEmergencyServices,
  RAT_Type_AVP,
  Called_Station_Id_AVP indicating value "Emergency_APN"
  Framed_IP_Address_AVP
  "or" Framed_IP6_IP_Address_AVP
  QoS_Information_AVP
  Default_EPS_Bearer_QoS_AVP containing
  QoS_Class_Identifier_AVP
  indicating value '5'
  Allocation_Retention_Priority_AVP containing
  Priority_Level_AVP
  Pre_emption_Capablity_AVP
  Pre_emption_Vulnerability_AVP
  to the EPC_PCRF_A entity
  }
  then {
  the EPC_PCRF_A sends the CCA containing
  Result_Code_AVP
  indicating value DIAMETER_SUCCESS
  to the EPC_PGW_A entity
  }
}

7.8 S6a interface

TP Id	TP_S6A_HSS_ECO_ULA_01
Test Objective	Verify that IUT after receipt of UL-Request sends UL-Answer containing Emergency-Info AVP.
Reference	ETSI TS 129 272 [9], clause 5.2.1.1.2
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
  the UE_A isNotAttachedTo the EPC_A and
  the UE_A isNotRegisteredTo the IMS_A
  }	

Expected Behaviour	

ensure that {
  when {
  the EPC_MME_A sends a ULR
  to the IMS_HSS_A entity
  }
  then {
  the IMS_HSS_A sends the ULA containing
  Subscription_Data_AVP containing
  Emergency_Info_AVP indicating value PDN_GW,
  Result_Code_AVP
  indicating value DIAMETER_SUCCESS
  ULA_Flags_AVP
  to the EPC_MME_A entity
  }
}	

7.9 S9 interface

None.

7.10 Sh interface

None.

7.11 ISC interface

TP Id	TP_ISC_SCSCF_EMC_INVITE_01
Test Objective	Verify that the AS successfully identify the request for emergency call and forwards it towards S-CSCF.
Reference	ETSI TS 124 229 [1], clauses 4.7.3 and 5.7.1.14
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the UE_A isAttachedTo the EPC_A and
the UE_A isRegisteredTo the IMS_A and
the UE_A not isEmergencyRegisteredTo the IMS_A
}	

Expected Behaviour	

ensure that {
when {
the IMS_AS_A receives an INVITE
from the UE_A entity
}
then {
the IMS_AS_A sends an INVITE containing
From indicating value PX_UE_A_SIP_URI,
To indicating value PX_SIP_EMERGENCY_SERVICE_URN,
Request_Uri indicating value PX_SIP_EMERGENCY_SERVICE_URN,
Route indicating value PX_E_CSCF_SERVICE_ROUTE,
PChargingVector,
MessageBody
to the IMS_S_CSCF_A entity
}
}	

7.12 Rtp interface

TP Id	TP_RTP_ECO_01
Test Objective	Verify that media between UE_A/IVS and PSAP is not delivered in any direction before call establishment.
Reference	ETSI TS 124 229 [1], clause 6
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the UE_A isAttachedTo the EPC_A and
the UE_A isRegisteredTo the IMS_A
}	

Expected Behaviour	

ensure that {
when {
the UE_A sends packets to the PSAP and
the PSAP sends packets to the UE_A entity
}
then {
the PSAP not receive media from the UE_A and
the UE_A not receive media from the PSAP entity
}
}	

TP Id	TP_RTP_ECO_03
Test Objective	Verify that media between UE_A and UE_B is successfully routed.
Reference	ETSI TS 124 229 [1], clause 6
Configuration	CF_VoLTE_INT_ES
PICS Selection	NONE
Initial Conditions	

with {
the UE_A isAttachedTo the EPC_A and
the UE_A isRegisteredTo the IMS_A
}	

Expected Behaviour

ensure that {
  when {
  the UE_A sends packets to the PSAP and
  the PSAP sends packets to the UE_A entity
  }
  then {
  the PSAP receives media from the UE_A and
  the UE_A receives media from the PSAP entity
  }
}

Annex A (normative): TDL-TO source files

Each TP in clause 7 above has been written in TDL-TO and thus in a structured manner which is consistent with all other TPs. The TDL-TO text files for all test purposes are released in the ETSI forge repository:

https://forge.etsi.org/rep/int/vxlte/emergency-iop/-/tree/main/test_purposes

Annex B (informative): Bibliography

PICS pro forma relevant to the Gm, Mw, ISC and Ic interfaces:

- ETSI TS 102 790-1: "Core Network and Interoperability Testing (INT); IMS specific use of Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Conformance Testing; (3GPP™ Release 10); Part 1: Protocol Implementation Conformance Statement (PICS)".

PICS pro forma relevant to the Cx interface:

- ETSI TS 103 289-1: "Core Network and Interoperability Testing (INT); Diameter Conformance testing for Cx and Dx interfaces; (3GPP Release 10); Part 1: Protocol Implementation Conformance Statement (PICS)".

PICS pro forma relevant to the Gx interface:

- ETSI TS 101 606-1: "IMS Network Testing (INT); Diameter Conformance testing for Gx interface; Part 1: Protocol Implementation Conformance Statement (PICS)".

PICS pro forma relevant to the Rx interface:

- ETSI TS 101 580-1: "Core Network and Interoperability Testing (INT); Diameter Conformance testing for Rx interface; (3GPP Release 10); Part 1: Protocol Implementation Conformance Statement (PICS)".

PICS pro forma relevant to the Sh interface:

- ETSI TS 103 571-1: "Core Network and Interoperability Testing (INT); Diameter Conformance testing for Sh/Dh interface; (3GPP™ Release 13); Part 1: Protocol Implementation Conformance Statement (PICS)".

PICS pro forma relevant to the S6a interfaces:

- ETSI TS 103 261-1: "Core Network and Interoperability Testing (INT); Diameter Conformance testing for S6a interface; (3GPP Release 10); Part 1: Protocol Implementation Conformance Statement (PICS)".

PICS pro forma relevant to the S9 interface:

- ETSI TS 103 262-1: "Core Network and Interoperability Testing (INT); Diameter Conformance testing for S9 interface; (3GPP Release 10); Part 1: Protocol Implementation Conformance Statement (PICS)".

History

Document history		
V1.1.1	March 2024	Publication