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Lawful Interception (LI);
IMS and LTE FAQ and Guidance

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Foreword

This Special Report (SR) has been produced by ETSI Technical Committee Lawful Interception (LI).

Modal verbs terminology

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Introduction

The present document provides a summary of some of the issues that members of ETSI TC LI believe to be important in relation to the Lawful Interception of IMS (IP Multimedia Subsystem) and LTE (Long Term Evolution).

1 Scope

The present document provides guidance to interested parties regarding implementation of Lawful Interception (LI) for LTE, IMS and related services. It covers what is available and how it may be interpreted.

The present document is in the format of a set of Frequently Asked Questions and their accompanying answers, contained within the present document. An Explanatory Note is produced to accompany the present document which contains some observations based on the questions and answers.

The present document covers both Lawful Interception and Data Retention.

2 References

2.1 Normative references

Normative references are not applicable in the present document.

2.2 Informative references

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

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] GSMA IR.92 v7.0: "IMS Profile for Voice and SMS".

[i.2] GSMA RCC.61: "RCS Common Core 1.1 Service Description Document, Version 2.0".

[i.3] GSMA IR.64: "IMS Service Centralization and Continuity Guidelines".

[i.4] ETSI TS 133 107: "Universal Mobile Telecommunications System (UMTS); LTE; 3G security; Lawful interception architecture and functions (3GPP TS 33.107)".

[i.5] ETSI TS 133 108: "Universal Mobile Telecommunications System (UMTS); LTE; 3G security; Handover interface for Lawful Interception (LI) (3GPP TS 33.108)".

[i.6] ETSI TS 102 232-1: "Lawful Interception (LI); Handover Interface and Service-Specific Details (SSD) for IP delivery; Part 1: Handover specification for IP delivery".

[i.7] ETSI TS 102 232-5: "Lawful Interception (LI); Handover Interface and Service-Specific Details (SSD) for IP delivery; Part 5: Service-specific details for IP Multimedia Services".

[i.8] ETSI TS 102 232-7: "Lawful Interception (LI); Handover Interface and Service-Specific Details (SSD) for IP delivery; Part 7: Service-specific details for Mobile Services".

[i.9] ETSI TS 102 657: "Lawful Interception (LI); Retained data handling; Handover interface for the request and delivery of retained data".

[i.10] Recommendation ITU-T E.164: "The International Public Telecommunication Numbering Plan".

[i.11] IETF RFC 7977: "The Message Session Relay Protocol (MSRP)".

[i.12] IETF RFC 4825: "The Extensible Markup Language (XML) Configuration Access Protocol (XCAP)".

[i.13] ATIS-1000678.v3.2015: "Lawfully Authorized Electronic Surveillance (LAES) for Voice over Internet Protocol in Wireline Telecommunications Networks".

[i.14] ATIS-0700005.v002.2017: "Lawfully Authorized Electronic Surveillance (LAES) for 3GPP IMS-based VoIP and other Multimedia Services".

[i.15] PKT-SP-ES-INF-I04-080425: "PacketCable™ 2.0 Electronic Surveillance Intra-Network Specification".

[i.16] ETSI TS 123 228: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; IP Multimedia Subsystem (IMS); Stage 2 (3GPP TS 23.228)".

[i.17] ETSI TS 129 228: "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)".

[i.18] ETSI TS 129 229: "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)".

[i.19] ETSI TS 129 230: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Diameter applications; 3GPP specific codes and identifiers (3GPP TS 29.230)".

[i.20] ETSI TS 124 229: "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)".

[i.21] ETSI TS 123 003: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Numbering, addressing and identification (3GPP TS 23.003)".

[i.22] IETF RFC 7254: "A Uniform Resource Name Namespace for the Global System for Mobile Communications Association (GSMA) and the International Mobile Station Equipment Identity (IMEI)".

[i.23] IETF RFC 7255: "A Uniform Resource Name Namespace for the Global System for Mobile Communications Association (GSMA) and the International Mobile Station Equipment Identity (IMEI)".

[i.24] 3GPP TR 33.827: "Study on Providing for LI in the S8 Home Routing Architecture for VoLTE (Release 14)".

[i.25] ETSI TS 124 607: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Originating Identification Presentation (OIP) and Originating Identification Restriction (OIR) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification (3GPP TS 24.607)".

[i.26] ETSI TS 124 608: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Terminating Identification Presentation (TIP) and Terminating Identification Restriction (TIR) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification (3GPP TS 24.608)".

[i.27] ETSI TS 124 610: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Communication HOLD (HOLD) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification (3GPP TS 24.610)".

[i.28] ETSI TS 124 605: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Conference (CONF) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification (3GPP TS 24.605)".

[i.29] ETSI TS 124 604: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Communication Diversion (CDIV) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification (3GPP TS 24.604)".

[i.30] ETSI TS 124 611: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Anonymous Communication Rejection (ACR) and Communication Barring (CB) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification (3GPP TS 24.611)".

[i.31] ETSI TS 124 615: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Communication Waiting (CW) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol Specification (3GPP TS 24.615)".

[i.32] ETSI TS 124 606: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Message Waiting Indication (MWI) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification (3GPP TS 24.606)".

[i.33] ETSI TS 124 647: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Advice Of Charge (AOC) using IP Multimedia (IM) Core Network (CN) subsystem (3GPP TS 24.647)".

[i.34] ETSI TS 124 654: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Closed User Group (CUG) using IP Multimedia (IM) Core Network (CN) subsystem, Protocol Specification (3GPP TS 24.654)".

[i.35] ETSI TS 124 239: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Flexible Alerting (FA) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification (3GPP TS 24.239)".

[i.36] ETSI TS 124 182: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; IP Multimedia Subsystem (IMS) Customized Alerting Tones (CAT); Protocol specification (3GPP TS 24.182)".

[i.37] ETSI TS 124 183: "Universal Mobile Telecommunications System (UMTS); LTE; IP Multimedia Subsystem (IMS) Customized Ringing Signal (CRS); Protocol specification (3GPP TS 24.183)".

[i.38] ETSI TS 101 671: "Lawful Interception (LI); Handover interface for the lawful interception of telecommunications traffic".

[i.39] IETF RFC 3550: "RTP: A Transport Protocol for Real-Time Applications".

[i.40] IETF RFC 4867: "RTP Payload Format and File Storage Format for the Adaptive Multi-Rate (AMR) and Adaptive Multi-Rate Wideband (AMR-WB) Audio Codecs".

[i.41] IETF RFC 4733: "A Mechanism for Transporting User-to-User Call Control Information in SIP".

[i.42] IETF RFC 2833: "RTP Payload for DTMF Digits, Telephony Tones and Telephony Signals".

[i.43] GSMA IR.94: "IMS Profile for Conversational Video Service v10.0".

3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

ADSL	Asymmetric Digital Subscriber Line
AMR	Adaptive Multi-Rate Wideband
ANDSF	Access Network Discovery and Selection Function
AS	Application Server
A-SBC	Access Session Border Controller
ASN.1	Abstract Syntax Notation One
ATCF	Access Transfer Control Function
ATGW	Access Transfer Gateway
CBP	Constrained Baseline Profile

CC	Content of Communications
CGI	Cell Global Identifier
CHP	Constrained High Profile
CMTS	Cable Modem Termination System
CS	Circuit Switched
CSCF	Call Session Control Function
CSP	Communication Service Provider
DR	Data Retention
DSR	Dynamic Source Routing
ECGI	E-UTRAN Cell Global Identifier
ENUM	E.164 Number to URI Mapping
EPC	Evolved Packet Core
ePDG	evolved Packet Data Gateway
EPS	Evolved Packet System
eRCS	enhanced RCS
eSRVCC	enhanced SRVCC
E-UTRAN	Evolved-UMTS-Terrestrial Radio Access Network
EVS	Enhanced Voice Services
FFS	For Further Study
GPRS	General Packet Radio Services
GRUU	Globally Routable User agent URI
GSMA	Global System Mobile Association
GW	Gateway
HEVC	High Efficiency Video Coding
HI2	Handover Interface port 2 (for Intercept Related Information)
HI3	Handover Interface port 3 (for Content of Communication)
HPLMN	Home Public Land Mobile Network
HSS	Home Subscriber Server
IAP	Intercept Access Point
ICS	IMS Centralized Service
IMEI	International Mobile Equipment Identity
IMS	IP Multimedia Subsystem
IMSI	International Mobile Subscriber Identity
IoT	Internet of Things
IP	Internet Protocol
IR	GSMA Permanent Reference Document
IRI	Intercept Related Information
LBO	Local Break Out
LEA	Law enforcement agency
LEMF	Law Enforcement Monitoring Facility
LI	Lawful Intercept
LIID	Lawful Interception Identifier
LTE	Long Term Evolution
MCC	Mobile Country Code
MF	Mediation Function
MF/DF	Mediation Function . Delivery Function
MGCF	Media Gateway Control Function
MGW	Media GateWay
MMS	Multimedia Messaging Service
MNC	Mobile Network Code
MRF	Media Resource Function
MSC	Mobile Switching Centre
MSISDN	Mobile Station International Subscriber Directory Number
MSRP	Message Session Relay Protocol
MTAS	Mobile Terminating Access Service
MVNO	Mobile Virtual Network Operator
NAI	Network Access Identifier
NB	Narrow band
PANI	Private-Access-Network-Info
PCC	Policy Control and Charging
P-CSCF	Proxy-CSCF
P-GRUU	Public GRUU

PGW	Packet data network GateWay
PLMN	Public Land Mobile Network
PMN	Public Mobile Network
PS	Packet Switched
PSTN	Public Switched Telephone Network
RCS	Rich Communications Service
RS	Reference Signal
RTP	Real-Time Transport Protocol
S8HR	S8 (interface point) Home Routing
SDP	Session Description Protocol
SEW	Support of Emergency services over WLAN

NOTE: More information available at http://www.3gpp.org/DynaReport/WiCr--690033.htm.

S-GW	Serving GateWay
SIM	Subscriber Identity Module
SIP	Session Initiation Protocol
SM	SIP MESSAGE
SMS	Short Message Service
S-PGW	Serving PGW
SRVCC	Single Radio-VCC
SS	Supplementary Services
TIP	Terminating Identification Presentation
TIR	Terminating Identification Restriction
TLS	Transport Layer Security
UE	User Equipment
UMTS	Universal Mobile Telecommunications System
URI	Uniform Resource Identifier
URL	Uniform Resource Locator
URN	Uniform Resource Name
ViLTE	Video over LTE
VoLTE	Voice over LTE
VoWiFi	Voice over Wireless Fidelity
VPLMN	Visited Public Land Mobile Network
WebRTC	Web Real Time Communications
WLAN	Wireless Local Area Network
XCAP	XML Configuration Access Protocol
XML	eXtensible Markup Language

4 Questions and guidance statements

4.0 Introduction

This clause contains a series of subclauses regarding various themes relating to IMS, LTE and VoLTE; each of the subclauses contains a list of Frequently Asked Questions and Answers.

4.1 General solution architecture

4.1.1 Introduction

This clause provides general information concerning LTE, IMS, and VoLTE.

4.1.2 Question: What is the relationship between LTE and EPS?

Long Term Evolution (LTE) is the radio access to the Evolved Packet System (EPS).