وزارة الصناعة والتكنولوجيا المتقدمة

Ministry of Industry & Advanced Technology

(MOIAT)

UNITED ARAB EMIRATES
MINISTRY OF INDUSTRY
& ADVANCED TECHNOLOGY

الإمارات العربية المتحدة
وزارة الصناعة
والتكنولوجيا المتقدمة

المواصفة القياسية الامارتية

UAE.S 5019 : 2022

المركبات – المتطلبات الفنية لاتصال الطوارئ eCall

Motor vehicle - “eCall” Emergency Calls Technical Requirements

دولة الإمارات العربية المتحدة

UNITED ARAB EMIRATES

ICS: **43.020**

المركبات – المتطلبات الفنية لاتصال الطوارئ eCall

المواصفات القياسية الإماراتية لدولة الإمارات العربية المتحدة

Standards of United Arab Emirates

تاريخ إعتماد مجلس الوزراء	
صفة الإصدار	**لائحة فنية**

تقديم

تعتبر وزارة الصناعة و التكنولوجيا المتقدمة (MOIAT) الجهة الوطنية المسؤولة عن أنشطة التقييس ؛ من خلال إصدار المواصفات القياسية الإماراتية / اللوائح الفنية من خلال اللجان الفنية المتخصصة.

أعدت الوزارة من خلال " اللجنة الفنية لمواصفات المركبات " المواصفة الإمارتية UAE.S 5019 : 2022 " – المركبات – المتطلبات الفنية لاتصال الطوارئ eCall"

تمت الموافقة على هذا المعيار باعتباره لائحة فنية إماراتية بموجب قرار مجلس الوزراء الإماراتي رقم ( ) بتاريخxx –xx– 2022

المركبات - المتطلبات الفنية لنظام إتصال الطوارئ Ecall

1- المجال

تختص هذه المواصفة القياسية بالمتطلبات الفنية لإتصال الطوارئ بالمركبات الخفيفة الجديدة المخصصة لنقل الركاب و/او الامتعة والتى لا يزيد وزنها عن 3.5 طن (ثلاث ونصف طن) والتي يتم استيرادها او تصنيعها للتسجيل والترخيص في دولة الامارات العربية المتحدة.

2- التعاريف

1.2 اتصال الطوارئ eCall : هي عملية استدعاء الطوارئ من داخل المركبة إلى 999 ، يتم تشغيله تلقائيًا بواسطة حساسات داخل المركبة أو يدويًا بواسطة الراكب ، مما يؤدي إلى نقل الحد الأدنى من البيانات وإنشاء قناة إتصال صوتي بين المركبة و PSAP التي تدعم إتصال الطوارئ عبر شبكات الاتصالات اللاسلكية المتنقلة العامة.

2.2 نقطة استجابة السلامة العامة (PSAP): الموقع الفعلي الذي يتم فيه تلقي مكالمات الطوارئ لأول مرة ويكون تحت مسؤولية سلطة حكومية أو جهة خاصة تعترف بها الحكومة يعمل على مدار 24 ساعة في اليوم.

3.2 مراكز PSAP المخول لاتصال الطوارئ :هي أنسب PSAP في منطقة محددة داخل الدولة يتم تحديدها مسبقًا من قبل السلطات الوطنية لتلقي ومعالجة مكالمات الطوارئ أولا

4.2 نظام eCall داخل المركبة : يشمل كافة المعدات داخل المركبة التي تقوم بإتصال طوارئ eCall إما تلقائية أو يدويا عبر الهاتف المحمول خلال شبكات الاتصالات اللاسلكية العامة ، ونقل الحد الأدنى لمجموعة من البيانات وإنشاء قناة إتصال صوتي بين راكب المركبة وPSAP المخول.

5.2 الحد الأدنى لمجموعة البيانات (MSD) : هي المعلومات التي يتم إرسالها الى(PSAP) من خلال نظام إتصال الطوارئ داخل المركبة ، وتشمل المعلومات المحددة بواسطة مواصفة EN 15722:2015 "أنظمة النقل الذكية القياسية eSafety - الحد الأدنى لمجموعة البيانات لإتصال الطوارئ (MSD)" .

6.2 **نوع جديد (موديل):** تعتبر المركبة نوعا جديدًا في حالة وجود حصول إجراء أحد التغييرات التالية عليها :

- الشركة المصنعة للمركبة
- فئة المركبة
- نمط هيكل جسم المركبة
- خصائص محرك المركبة
- مصدر طاقة المركبة (وقود – كهرباء – هجين)

7.2 **المركبات ذات الانتاج المحدود** : المركبات المصنعة داخل الدولة او المستوردة للتسجيل والترخيص بعدد لا يتجاوز القيم المحددة في الجدول رقم (1).

3- المواصفات المرجعية

الوثائق المرجعية المبينة في الملحق رقم (10) اساسية لتطبيق هذه المواصفة القياسية ويمكن فقط الرجوع للإصدار المحدد. أما المراجع غير المؤرخة، فيجب إستخدام آخر إصدار للوثيقة المرجعية (شاملة أية تعديلات) .

4- المتطلبات العامة

4.1 لا تخضع المركبات ذات الانتاج المحدود الواردة تعريفها في البند 2.7 الى الاشتراطات الواردة في هذه المواصفة القياسية .

4.2 يجب تزويد مركبات الركاب والتي لا تحتوي على أكثر من ثمانية مقاعد بالإضافة إلى مقعد السائق وكتلتها لا تتجاوز 3.5 طن(ثلاث ونصف طن) بنظام اتصال الطوارئeCall .

4.3-يجب تزويد المركبات الخاصة بنقل البضائع وكتلتها لا تتجاوز 3.5 طن(ثلاث ونصف طن) بنظام اتصال الطوارئ eCall .

4.4 يجب ان تحتوي جميع الموديلات الجديدة من المركبات. التي يتم تسجيلها وترخيصها بنظام اتصال الطوارئ eCall ابتداءً من تاريخ الانتاج 2020 م (تاريخ الموديل 2021)

4.5 يجب ان تحتوي جميع المركبات التي يتم تسجيلها وترخيصها داخل الدولة على نظام إتصال الطوارئ eCall بغض النظر عن تاريخ الانتاج او تاريخ النوع (الموديل) اعتبارا من تاريخ 2028/1/1 مع الاخذ بعين الاعتبار البند 4.1.

4.6 يتم تعديل عدد المركبات المستثناه من نظام اتصال الطوارئ eCall المشمولة بتعريف المركبات ذات الانتاج المحدود طبقا للجدول رقم (1).

الجدول رقم (1)

عدد المركبات ذات الانتاج المحدود

تاريخ التطبيق	عدد المركبات ذات الانتاج
اعتبارا من تاريخ 2024/1/1	60
اعتبارا من تاريخ 2025/1/1	50
اعتبارا من تاريخ 2026/1/1	40
اعتبارا من تاريخ 2027/1/1	30

4.7 يجب ان يكون نظام eCall داخل المركبة قادر في حالة وقوع حادث على إجراء مكالمة طوارئ عبر شبكات الاتصالات اللاسلكية العامة المتاحة.

4.8 يجب أن تكون أجهزة الاتصالات اللاسلكية الخاصة بنظام اتصال الطوارئ eCall مصممة بطريقة تجعلها تعمل تلقائياً بعد وقوع حادث شديد الخطورة حيث يتم تشغيل المنظومة وبدء مكالمة الطوارئ.

4.9 يجب أن تكون أجهزة eCall داخل المركبة قادرة على نقل الحد الأدنى من البيانات(MSD) . يتطلب ذلك توليد معلومات ديناميكية مثل المكان الجغرافي و الوقت والبيانات الثابتة مثل VIN أو نوع نظام دفع المركبة .

4.10 تعتبر بيانات اتصال الطوارئ (eCall) معلومات خدمات عامة ولكنها يمكن أن تكون متاحة للجهات الخاصة التي تحددها الجهات المسؤولة.

4.11 يجب الالتزام بجميع القوانين الوطنية المتعلقة بحماية البيانات وخصوصية الاشخاص.

4.12 يجب أن تكون المعلومات في نظام الاتصال اللاسلكي التي تعطى للركاب عبرHMI متاحًا على الأقل باللغتين العربية والإنجليزية.

4.13 يتم السماح بتقديم خدمة استقبال اتصال الطوارئ eCall من طرف ثالث بموجب موافقة الجهة المعنية بالاتصالات في الدولة

4.14 يجب على الشركات المصنعة التأكد من أن أنظمة eCall المركبة في المركبة متوافقة مع متطلبات eCall كما هو المحدد في هذه اللائحة و يجب أن يثبت أنه في حالة وقوع حادث خطير يتم تشغيل eCall تلقائيًا إلى رقم الطوارئ 999.

5- الاختباروالفحص

يجب ان يتم اختبار المركبات وفقًا لاختبارات المطابقة المحددة في الملحق 3 ، 4 ، 5 ، 6 ، 7 والملحق 8

الملحق رقم (1)

المعنى المقابل للمختصرات المستخدمة في هذه المواصفة القياسية.

Acronym	**Signification**
3GPP	3rd Generation Partnership Project
ANSI	American National Standards Institute
CEN	Comité Européen de Normalisation (French: European Committee for Standardization)
E-UTRA	Evolved Universal Terrestrial Radio Access
E-UTRAN	Evolved Universal Terrestrial Radio Access Network
EC	European Commission
eCall	Emergency Call
EN	European Norm
EPS	Evolved Packet System
FDD	Frequency Division Duplex
GCC	Gulf Countries Council
GPRS	General Packet Radio Service
GSM	Global System for Mobile communications
GSO	GCC Standardization Organization
HLAP	High Level Application Protocols
IETF	Internet Engineering Task Force
IP	Internet Protocol
MAC	Medium Access Control
MS	Mobile Station
MSD	Minimum Set of Data
NAS	Non-Access-Stratum
PEOR	Pan European eCall Operating Requirements
RLC	Radio Link Control
RRC	Radio Resource Control
SDP	Session Description Protocol
SIP	Session Initiation Protocol
TR	Technical Report
TS	Technical Specification
UE	User Equipment
UTRAN	Universal Terrestrial Radio Access Network
WAN	Wide Area Network

ملحق 2

Resistance of eCall systems to severe crashes (high-severity deceleration test)

Performance requirements

The eCall in-vehicle systems, components or separate technical units shall demonstrate post-deceleration/acceleration event following functionality.

- The eCall system shall be able to successfully transmit an MSD to a PSAP test point.
- The eCall system shall be able to determine an up-to-date timestamp for an eCall incident.
- The eCall system shall be able to determine accurately the up-to-date vehicle location.
- The eCall system shall be able to connect to and transmit data via the mobile network.

Test procedure

Test Procedure of Annex I delegated regulation (EU) 2017/79

ملحق 3

Full-scale impact test assessments

The full-scale impact assessments of vehicles with eCall in-vehicle systems installed, carried out in accordance with Paragraph 2, shall be considered satisfactory if the following requirements are demonstrated post-impact.

Automatic triggering: The eCall system shall automatically initiate an eCall after an impact in accordance with UN Regulation No. 94 (Annex 3) or UN Regulation No. 95 (Annex 4), as applicable.

Manual triggering: The eCall system shall allow manual triggering of an eCall by vehicle occupants.

Call status indication: The eCall system shall inform the occupants about the current status of the eCall (status indicator) using a visual and/or audible signal optional in English and Arabic language.

MSD emission and encoding: The eCall system shall be able to successfully transmit an MSD to a PSAP test point via the mobile network.

Vehicle-specific data determination: The eCall system shall be able to populate accurately the mandatory vehicle-specific data fields of the MSD.

Position determination: The eCall system shall be able to determine accurately the up-to-date vehicle location.

Test procedure

Test Procedure of Annex II delegated regulation (EU) 2017/79

ملحق 4

Attachment III: Crash resistance of audio equipment

Requirements

The assessment of the crash resistance of the eCall audio equipment of vehicles with eCall in-vehicle systems installed, carried out in accordance with Paragraph 2, shall be considered satisfactory if the following requirements are demonstrated post-impact.

Reconnection of audio equipment: The eCall system shall reconnect the loudspeaker(s) and microphone(s) after being disconnected during an eCall for MSD transmission.

Voice communication: The eCall system shall allow hands-free voice communication (send and receive direction) of sufficient intelligibility between vehicle occupants and an operator.

Test procedure

Test Procedure of Annex III delegated regulation (EU) 2017/79

Appendix

Test sentences

The following test sentence pairs shall be used for the exchange of test messages in the send and receive directions.

Test sentence pairs in both languages are provided below.

English

(a) These days a chicken leg is a rare dish.
The hogs were fed with chopped corn and garbage.
(b) Rice is often served in round bowls.
A large size in stockings is hard to sell.
(c) The juice of lemons makes fine punch.
Four hours of steady work faced us.
(d) The birch canoe slid on smooth planks.
Glue the sheet to the dark blue background.

ملحق 5

Automatic triggering mechanism

The following requirements apply to vehicles with eCall in-vehicle systems installed.

Documentation requirements:

The manufacturer shall provide a statement which affirms that the strategy chosen to trigger an automatic eCall ensures triggering also in accident configurations dissimilar from and/or of a lower severity than the collisions simulated in the applicable full-scale crash tests in UN Regulation No. 94 and UN Regulation No. 95.

The manufacturer shall choose the collision typology and severity and will demonstrate that it is significantly different than the full-scale crash tests. The manufacturer shall provide an explanation and technical documentation which shows, in overall terms, how this is achieved.

Documentation that shows, to the satisfaction of the GCC, that the activation of supplemental restraint systems, at the severity level chosen at the discretion of the manufacturer, also induces an automatic eCall shall be considered satisfactory.

Airbag control unit specification drawings, specification data notes, sensitivity drawings, relevant circuit diagrams or similar documents considered equivalent by the GCC would be suitable means to demonstrate this connection.

The extended documentation package shall remain strictly confidential. It may be kept by the GCC, or, at the discretion of the GCC, may be retained by the manufacturer. In case the manufacturer retains the documentation package, that package shall be identified and dated by the approval authority once reviewed and approved. It shall be made available for inspection by the GCC at the time of approval or at any time during the validity of the approval.

Test procedure

According to Test Procedure of Annex VI delegated regulation (EU) 2017/79

الملحق6

Co-existence of third-party services (TPS) with the 112-based eCall in-vehicle systems

The following requirements apply to 112-based eCall in-vehicle systems, STUs and (optionally for) components that shall be used in conjunction with a TPS eCall in-vehicle system.

Performance requirements

The 112-based system shall be deactivated as long as the TPS system is active and does function.

The 112-based system shall be automatically triggered in the event that the TPS system is triggered but does not function.

Documentation requirements

The manufacturer shall provide the technical service with an explanation of the design provisions built into the TPS system to ensure automatic triggering of the 112-based system ('fall-back procedure') in the event that the TPS system does not function. This documentation shall describe the principles of the changeover mechanism.

The documentation shall be supported by an analysis which shows, in overall terms, any hardware or software failure conditions that would result in an inability of the TPS system to perform a successful call and how the TPS system will behave on the occurrence of these.

This may be based on a Failure Mode and Effect Analysis (FMEA), a Fault Tree Analysis (FTA) or any appropriate similar process as agreed between the technical service and the manufacturer.

The chosen analytical approach(es) shall be established and maintained by the manufacturer and shall be made open for inspection by the technical service at the time of the type-approval.

Test procedure

According to Test procedure of Annex V, commission delegated regulation (EU) 2017/79

الملحق7

Technical requirements for compatibility of eCall in-vehicle systems with the positioning services provided by the Galileo and the GLONASS systems

Compatibility requirements

The 'Galileo system compatibility' shall be: the reception and processing of the signals from the Open Service of Galileo, using it in the computation of the final position.
The ' GLONASS system compatibility' shall be: the reception of the corrections from the Open Service of GLONASS and its application to the GNSS signals, in particular GPS.
The compatibility of the eCall in-vehicle systems with the positioning services provided by the Galileo and the EGNOS systems shall be compliant with respect to positioning capabilities below and demonstrated by performing the test methods in section 2.
The testing procedures can be performed either on the eCall unit including post processing ability or directly on the GNSS chipset receiver being a part of the eCall.

Performance requirements

The GNSS receiver shall be able to output the navigation solution in a NMEA-0183 protocol format (RMC, GGA, VTG, GSA and GSV message). The eCall setup for NMEA-0183 messages output to external devices shall be described in the operation manual.
The GNSS receiver being a part of the eCall shall be capable of receiving and processing GNSS signals from at least three global navigation satellite systems, including GLONASS, Galileo and GPS and is capable of reception and processing of SBAS signals.
The GNSS receiver being a part of the AECC shall be capable of receiving and processing individual GNSS signals in L1/E1 band from at least three global navigation satellite systems, including GLONASS, GALILEO and GPS.
The GNSS receiver being a part of the AECC shall be capable of receiving and processing combined GNSS signals in L1/E1 band from at least three global navigation satellite systems, including GLONASS, GALILEO, GPS and SBAS.
Horizontal position error shall not exceed:

- under open sky conditions: 15 meters at confidence level 0.95 with Position Dilution of Precision (PDOP) in the range from 2.0 to 2.5;
- in urban canyon conditions: 40 meters at confidence level 0.95 with Position Dilution of Precision (PDOP) in the range from 3.5 to 4.0.

The specified requirements for accuracy shall be provided:

- at speed range from 0 to [140] km/h;
- linear acceleration range from 0 to 2g
-

Cold start time to first fix shall not exceed

- 60 seconds for signal level down to minus 130 dBm;
- 300 seconds for signal level down to minus 140 dBm.

GNSS signal re-acquisition time after block out of 60 seconds at signal level down to minus 130 dBm

shall not exceed 20 seconds after recovery of the navigation satellite visibility.

The GNSS receiver shall be able to obtain a position fix at least for every second.

Sensitivity at receiver input shall be:

- GNSS signals detection (cold start) do not exceed 3600 seconds at signal level on the antenna input of the eCall of minus 144 dBm;
- GNSS signals tracking and navigation solution calculation is available for at least 600 seconds at signal level on the antenna input of the eCall of minus 155 dBm;
- Re-acquisition of GNSS signals and calculation of the navigation solution is possible and does not exceed 60 seconds at signal level on the antenna input of the eCall of minus 150 dBm.

Test procedure

Test Procedure according to Annex 10 of ECE/TRANS/WP.29/2017/132

ملحق 8

In-vehicle system self-test

Requirements

The following requirements apply to a vehicle with eCall in-vehicle system installed.

Performance requirements

The eCall system shall carry out a self-test at each system power-up. The self-test function shall monitor at least the technical items listed in Table 1. A warning in form of either a visual tell-tale or a warning message in a common space shall be provided in case a failure is detected by the self-test function. It shall remain activated while the failure is present. It may be cancelled temporarily, but shall be repeated whenever the ignition or vehicle master control switch is being activated.

Requirements for the periodic technical inspection

It shall be possible to verify the integrity of the eCall in-vehicle system via a test call to a dedicated test PSAP. According to this it shall at least be possible to test the accuracy of the Minimum Set of Data, the connectivity to the Public Land Mobile Network(s) and the functionality of the voice communication by audible means. All necessary information for the proper conduct of the test shall be made freely available.

Documentation requirements

1.4.1. The manufacturer shall provide the type-approval authorities with documentation in accordance with Table 1, which shall contain for each item the technical principle applied to monitor the item.

Table 1: Template of information for self-test function

Item	Technical principle applied for monitoring
eCall ECU is in working order (e.g. no internal hardware failure, processor/memory is ready, logic function in expected default state)	
External mobile network antenna is connected	
Mobile network communication device is in working order (no internal hardware failure, responsive)	
External GNSS antenna is connected	
GNSS receiver is in working order (no internal hardware failure, output within expected range)	
Crash control unit is in working order (e.g. no internal hardware failure, processor is ready, logic function in expected default state)	
No communication failures (bus connection failures) of relevant components	
SIM is present (this item only applies if a removable SIM is used)	
Power source is connected	

Test procedure

According to Annex VII, commission delegated regulation (EU) 2017/79

ملحق 9

Technical requirements and test procedures related to privacy and data protection

Part I: Procedure for verifying the lack of traceability of eCall in-vehicle systems

This is to ensure that the 999 based eCall in-vehicle system is not traceable and is not subject to any constant tracking in its normal operational status.

Requirements

The 999 based eCall in-vehicle system is not available for communication with the PSAP if the PSAP test point initiates the communication.

Failure to establish the connection can be attributed to the 999-based eCall in-vehicle system not being registered on the network.

Test procedure

According to Test Procedure of Annex VIII Part I, Commission Delegated Regulation (EU) 2017/79

Part II: Procedure for verifying the length of time an eCall log file is stored by the eCall in-vehicle system

This is to demonstrate that the personal data shall not be retained by the eCall in-vehicle system longer than necessary for the purpose of handling the emergency situation. Those data shall be fully deleted as soon as they are no longer necessary for that purpose. This is to be judged by proving that eCall log files are not kept beyond 13 hours from the point of initiating an eCall.

Requirements

When interrogated, the eCall in-vehicle system shall not maintain any record of an eCall in its memory beyond 13 hours from the point of initiating an eCall.

Test conditions

The evaluator shall be facilitated to have access to the part of the system where the eCall log files are stored in the IVS during evaluation. The following test shall be performed on a representative arrangement of parts.

Test procedure

According to Test Procedure of Annex VIII Part II, commission delegated regulation (EU) 2017/79

Assessment

The requirement is determined to have been passed if immediately log file information is presented which after 13 hours will no longer be present in the eCall in-vehicle system memory. The presence of a log file pertaining to an eCall that has occurred more than 13 hours ago constitutes a failure. Same applies if log is empty immediately after initiation of an eCall.

Part III: Procedure for verifying the automatic and continuous removal of data in the internal memory of eCall in-vehicle systems

This is to demonstrate that in the internal memory of the 999 based eCall in-vehicle system, maximum of last three locations of the vehicle shall be retained.

Requirements

When interrogated, the eCall in-vehicle system shall not maintain more than three recent locations of the vehicle.

Test conditions

During the evaluation access to the part of the system shall be facilitated where the vehicle location data are stored in the IVS internal memory.

The following test shall be performed on a representative arrangement of parts.

Test Method

Access shall be facilitated to where the vehicle location data are stored in the IVS internal memory.

This will involve the potential to download from the IVS any stored locations so that they can be viewed by the tester.

Assessment

The requirement is determined to have been passed if maximum of last three locations are present in the eCall in-vehicle system memory. The presence of more than three locations constitutes a failure.

PART IV

Procedure for verifying the non- exchange of personal data between an eCall in-vehicle system or STU and third party services systems

Requirements

The following requirements apply to eCall in-vehicle systems or STUs that shall be used in conjunction with a TPS eCall in-vehicle system functionality.

There is no exchange of personal data between the 999-based eCall in-vehicle system or STU and any additional system functionality providing TPS eCall or an added-value service.

Following an eCall made via the 999-based eCall in-vehicle system or STU, no log of this eCall shall be recorded in the memory of the TPS eCall or added-value service system.

Test procedure

According to Test Procedure of Annex VIII Part IV, commission delegated regulation (EU) 2017/79

الملحق 10

Normative references

The following referenced documents are indispensable for the application of this document.
For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

1 - eCall In-band Modem Specifications

- 3GPP TS 22.101: Service aspects; Service principles
- 3GPP TS 24.008: Mobile radio interface Layer 3 specification; Core network protocols; Stage 3
- 3GPP TS 26.267: eCall data transfer; In-band modem solution; General description
- 3GPP TS 26.268: eCall data transfer; In-band modem solution; ANSI-C reference code
- 3GPP TS 26.269: eCall data transfer; In-band modem solution; Conformance testing
- 3GPP TR 26.969: eCall data transfer; In-band modem solution; Characterization report
- ETSI TS 103 321 Mobile Standards Group (MSG); eCall HLAP Conformance Testing; Abstract Test Suite (ATS) and Protocol Implementation eXtra Information for Testing (PIXIT)

2 - GSM Radio and Network Specifications

- 3GPP TS 44.018: Mobile radio interface layer 3 specification; Radio Resource Control (RRC) protocol
- 3GPP TS 51.010: Mobile Station (MS) conformance specification; Part 1: Conformance specification
- 3GPP TS 45.002: Multiplexing and multiple access on the radio path
- 3GPP TS 45.003: Channel coding
- 3GPP TS 45.004: Modulation

3 - UMTS Circuit-Switched Radio and Network Specifications

- 3GPP TS 25.101: User Equipment (UE) radio transmission and reception (FDD)
- 3GPP TS 25.104: Base Station (BS) radio transmission and reception (FDD)
- 3GPP TS 25.133: Requirements for support of radio resource management (FDD)
- 3GPP TS 25.201: Physical layer - general description
- 3GPP TS 25.211: Physical channels and mapping of transport channels onto physical channels (FDD)
- 3GPP TS 25.212: Multiplexing and channel coding (FDD)
- 3GPP TS 25.213: Spreading and modulation (FDD)
- 3GPP TS 25.214: Physical layer procedures (FDD)
- 3GPP TS 25.215: Physical layer; Measurements (FDD)
- 3GPP TS 25.321: Medium Access Control (MAC) protocol specification
- 3GPP TS 25.322: Radio Link Control (RLC) protocol specification
- 3GPP TS 25.331: Radio Resource Control (RRC); Protocol specification
- 3GPP TS 25.41x: UTRAN Iu interface: General aspects and principles
- 3GPP TS 25.42x: UTRAN Iur interface general aspects and principles
- 3GPP TS 25.43x: UTRAN Iub Interface: general aspects and principles
- 3GPP TS 34.108: Common test environments for User Equipment (UE); Conformance testing

- 3GPP TS 34.121: Terminal conformance specification, Radio transmission and reception (FDD)

4 - CEN Specifications

- CEN EN 15722: Intelligent transport systems - eSafety- eCall minimum set of data (MSD)
- CEN EN 16072: Intelligent transport systems - eSafety - pan European eCall Operating Requirements (PEOR)
- CEN EN 16062: Intelligent transport systems - eSafety - eCall High Level Application Protocols (HLAP)
- CEN EN 16102: Intelligent transport systems - eSafety - eCall - Operating requirements for third party support
- CEN EN 16454: Intelligent transport systems - eSafety - eCall end to end conformance testing