



Technical Report

## **Machine-to-Machine Communications (M2M); Use Cases of M2M applications for eHealth**

---

Reference

DTR/M2M-00005ed111

---

Keywords

ageing, emergency, health, interworking, M2M,  
use case

**ETSI**

650 Route des Lucioles  
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C  
Association à but non lucratif enregistrée à la  
Sous-Préfecture de Grasse (06) N° 7803/88

---

**Important notice**

Individual copies of the present document can be downloaded from:

<http://www.etsi.org>

The present document may be made available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF). In case of dispute, the reference shall be the printing on ETSI printers of the PDF version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at

<http://portal.etsi.org/tb/status/status.asp>

If you find errors in the present document, please send your comment to one of the following services:

[http://portal.etsi.org/chaicor/ETSI\\_support.asp](http://portal.etsi.org/chaicor/ETSI_support.asp)

---

**Copyright Notification**

No part may be reproduced except as authorized by written permission.  
The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 2013.  
All rights reserved.

**DECT™**, **PLUGTESTS™**, **UMTS™** and the ETSI logo are Trade Marks of ETSI registered for the benefit of its Members.  
**3GPP™** and **LTE™** are Trade Marks of ETSI registered for the benefit of its Members and  
of the 3GPP Organizational Partners.  
**GSM®** and the GSM logo are Trade Marks registered and owned by the GSM Association.

# Contents

Intellectual Property Rights .....	5
Foreword.....	5
1 Scope .....	6
2 References .....	6
2.1 Normative references .....	6
2.2 Informative references.....	6
3 Definitions and abbreviations.....	6
3.1 Definitions.....	6
3.2 Abbreviations .....	6
4 M2M applications for eHealth .....	7
4.1 General description of M2M applications for eHealth.....	7
4.2 Specific examples for M2M applications for eHealth.....	8
4.2.1 Disease management.....	8
4.2.2 Aging Independently.....	9
4.2.3 Personal fitness and health improvement.....	9
5 eHealth use cases.....	9
5.1 Remote Patient Monitoring (RPM) .....	9
5.1.1 General Description .....	9
5.1.2 Stakeholders.....	10
5.1.3 Scenario .....	10
5.1.4 Information Exchanges .....	11
5.1.5 Potential new requirements.....	12
5.1.5.1 Device Initialization and Registration.....	12
5.1.5.2 Device Communications .....	13
5.1.5.2.1 Remote Control and Configuration .....	13
5.1.5.2.2 Patient Telemetry (Data Retrieval and Delivery) .....	14
5.1.5.3 Derived potential new requirements.....	15
5.2 Patient - Provider Secure Messaging.....	15
5.2.1 General Description .....	15
5.2.2 Stakeholders.....	16
5.2.3 Scenario .....	16
5.2.3.1 Secure Messaging Categories and Platforms .....	16
5.2.3.1.1 M2M Device (or system/application) to M2M Device (or system/application).....	16
5.2.3.1.2 M2M Device (or system/application) to User (patient or provider) .....	16
5.2.3.1.3 User (patient or provider) to M2M Device (or system/application) .....	16
5.2.3.1.4 Messaging Platforms .....	17
5.2.4 Information Exchanges .....	17
5.2.4.1 Initial Setup for Secure Messaging .....	17
5.2.4.1.1 User Initiated Communication.....	17
5.2.4.1.2 Device Initiated Communication.....	17
5.2.4.2 Patient Initiated Communication.....	17
5.2.4.2.1 User Initiated Communication.....	17
5.2.4.2.2 Device Initiated Communication.....	18
5.2.4.3 Provider Initiated Communication.....	18
5.2.4.3.1 User Initiated Communication.....	18
5.2.4.3.2 Device Initiated Communication.....	19
5.2.4.4 Other Information Exchanges .....	19
5.2.4.4.1 Routing Data Based on Content .....	19
5.2.4.4.2 Interoperability (Data Format, etc.).....	19
5.2.5 Potential new requirements.....	20
5.2.5.1 Updates to Security Protocols .....	20
5.2.5.2 Portability of Connection .....	20
5.2.5.3 Location Tracking .....	20

5.2.5.4	Rationale .....	20
5.2.5.5	Establishment (Registration) of Secure Messaging Capability .....	20
5.2.5.5.1	Device Registration .....	20
5.2.5.5.2	User Registration .....	21
5.2.5.6	Communication Use Cases (Patient or Provider Initiated).....	22
5.2.5.6.1	User - Device Communication (User Initiated).....	22
5.2.5.6.2	Device Initiated Communication.....	23
5.2.5.7	Device Maintenance .....	23
5.2.5.7.1	Software Update .....	23
5.3	Measurement of Very Low Voltage Body Signals (MVLBS) .....	24
5.3.1	General Description .....	24
5.3.2	Stakeholders.....	24
5.3.3	Scenario .....	24
5.3.4	Information Exchanges .....	24
5.3.5	Potential new requirements.....	25
5.3.5.1	Non-interference with electro medical devices .....	25
5.3.5.2	Radio transmission activity indication .....	25
5.3.5.3	Radio transmission activity control.....	25
5.4	Telecare data traffic between home and remote monitoring centre.....	25
5.4.1	General Description .....	25
5.4.2	Stakeholders.....	25
5.4.3	Scenario .....	26
5.4.4	Information Exchanges .....	27
5.4.5	Potential new requirements.....	28
History	.....	29

---

## Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: "*Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards*", which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<http://ipr.etsi.org>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

---

## Foreword

This Technical Report (TR) has been produced by ETSI Technical Committee Machine-to-Machine communications (M2M).

The present document is a TR and therefore, the content is informative, but when referenced by a TS, the referenced clauses may become normative with respect to the content of the referencing TS.

---

# 1 Scope

The present document collects Use Case descriptions for eHealth applications in context of Machine-to-Machine (M2M) communications. The described Use Cases will be used to derive service requirements and capabilities of the functional architecture specified in ETSI TC M2M.

---

## 2 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 reference document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at <http://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.

### 2.1 Normative references

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

Not applicable.

### 2.2 Informative references

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] IEEE 11073: "Health Informatic--Personal health device communication".
- [i.2] BS 8521:2009: "Specification for dual-tone multi-frequency (DTMF) signalling protocol for social alarm systems".

---

## 3 Definitions and abbreviations

### 3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

**eHealth:** generic term for a class of applications that serve the purpose of improving health care and medical services by means of electronic information or communications technology

NOTE: The definition of eHealth for the purpose of the present document covers many different applications.

### 3.2 Abbreviations

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

ECG	Electrocardiography
EHR	Electronic Health Record
EMR	Electronic Medical Record

NOTE: Typically maintained and managed by the provider.