



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

X.1081

Amendment 3
(10/2011)

SERIES X: DATA NETWORKS, OPEN SYSTEM
COMMUNICATIONS AND SECURITY

Information and network security – Telebiometrics

The telebiometric multimodal model – A framework
for the specification of security and safety aspects
of telebiometrics

**Amendment 3: Enhancement to support a new
modality (ELECTRO)**

CAUTION !

PREPUBLISHED RECOMMENDATION

This prepublication is an unedited version of a recently approved Recommendation. It will be replaced by the published version after editing. Therefore, there will be differences between this prepublication and the published version.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications, information and communication technologies (ICTs). The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

Compliance with this Recommendation is voluntary. However, the Recommendation may contain certain mandatory provisions (to ensure, e.g., interoperability or applicability) and compliance with the Recommendation is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the Recommendation is required of any party.

INTELLECTUAL PROPERTY RIGHTS

ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the Recommendation development process.

As of the date of approval of this Recommendation, ITU [had/had not] received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at <http://www.itu.int/ITU-T/ipr/>.

© ITU 2011

All rights reserved. No part of this publication may be reproduced, by any means whatsoever, without the prior written permission of ITU.

Recommendation ITU-T X.1081

The telebiometric multimodal model – A framework for the specification of security and safety aspects of telebiometrics

Amendment 3

Enhancement to support a new modality (ELECTRO)

Summary

This Amendment adds a seventh modality: "ELECTRO" and defines new object identifiers under the arc {2 42 1} assigned to the Recommendation X.1081.

1) Clause 5

Replace the following subclause of clause 5 as follows:

5.3 Interactions across the 1-m radius biosphere are classified into 14 modalities (see clause 7), representing interactions arising from the five human senses (seeing, hearing, touching, tasting and smelling), but generalized to all known categories of interactions. The seven become 14, because effects of the environment on the human being (e.g., VIDEO-IN – bright lights, or flashing lights) are modelled as distinct modalities from the effect of a human being on the environment or a sensor (e.g., VIDEO-OUT – gestures or facial expressions).

2) Clause 6

Replace the following subclause of clause 6 as follows:

6.5 Fourteen subdivisions of the modalities of the personal privacy sphere provide a generic multimodal model (see clause 7) to be used in the lowermost level of the bio field interacting with open telecommunication systems, securely and safely.

3) Clause 7

Replace the following subclauses of clause 7 as follows:

7.1 The interactions that take place across the personal privacy sphere can be categorized into seven broad categories based on the human senses and on ionizing radiation that can both be produced by the human body and can damage it (but cannot be directly sensed). These broad categories are called the basic interaction modalities.

7.2 These seven basic interaction modalities occur in one of two interaction modality ideal-types:

- The behavioural modality ideal-type represents interactions from the human being to the environment (seven outgoing interaction modalities). The seven behavioural modality ideal-types can be used to classify what kind of biometric signals and what type of measurements are going to be opted for by users, according to their cultural and personal preferences;
- The perceptual modality ideal-type represents interactions from the environment to the human being (seven incoming interaction modalities).

7.3 A third interaction modality ideal-type, the conceptual modality ideal-type represents interactions from the human being that presents things that it knows to the environment (see clause 7.8). This information can be transmitted using any of the seven basic interaction modalities of the behavioural modality ideal-type.

7.4 The fourteen (two-way) perceptual and behavioral modalities are:

- Video in (I see it);
- Video out (it sees me);
- Audio in (I hear it);
- Audio out (it hears me);
- Tango in (I touch it);
- Tango out (it touches me);
- Chemo in (I smell it or I taste it);
- Chemo out (it smells me or it tastes me);
- Radio in (I am irradiated);
- Radio out (I emit radiation);
- Calor in (I feel heat);
- Calor out (I emit heat),
- Electro in (I feel electrical current);
- Electro out (I emit electrical current).

7.5 Voluntarily emitted, biometrically unique signs are thus of seven basic interaction modalities in the behavioral modality ideal-types, and are the "out" bullets of clause 7.4. They are multimodal generic descriptors of what we are and what we manifest towards sensing devices such as a charge-coupled device, a microphone, a keyboard, or a Geiger-counter.

7.6 Voluntarily received, biometrically unique signs are of seven modalities in the perceptual modality ideal-types, and are the "in" bullets of clause 7.4. They are multimodal generic descriptors of what we are and what we manifest towards emitting devices that simulate these human senses.

7.10.1 The first classification is into the basic interaction modalities of:

- Video basic interaction modality;
- Audio basic interaction modality;
- Tango basic interaction modality;
- Chemo basic interaction modality;
- Radio basic interaction modality;
- Calor basic interaction modality,
- Electro basic interaction modality.

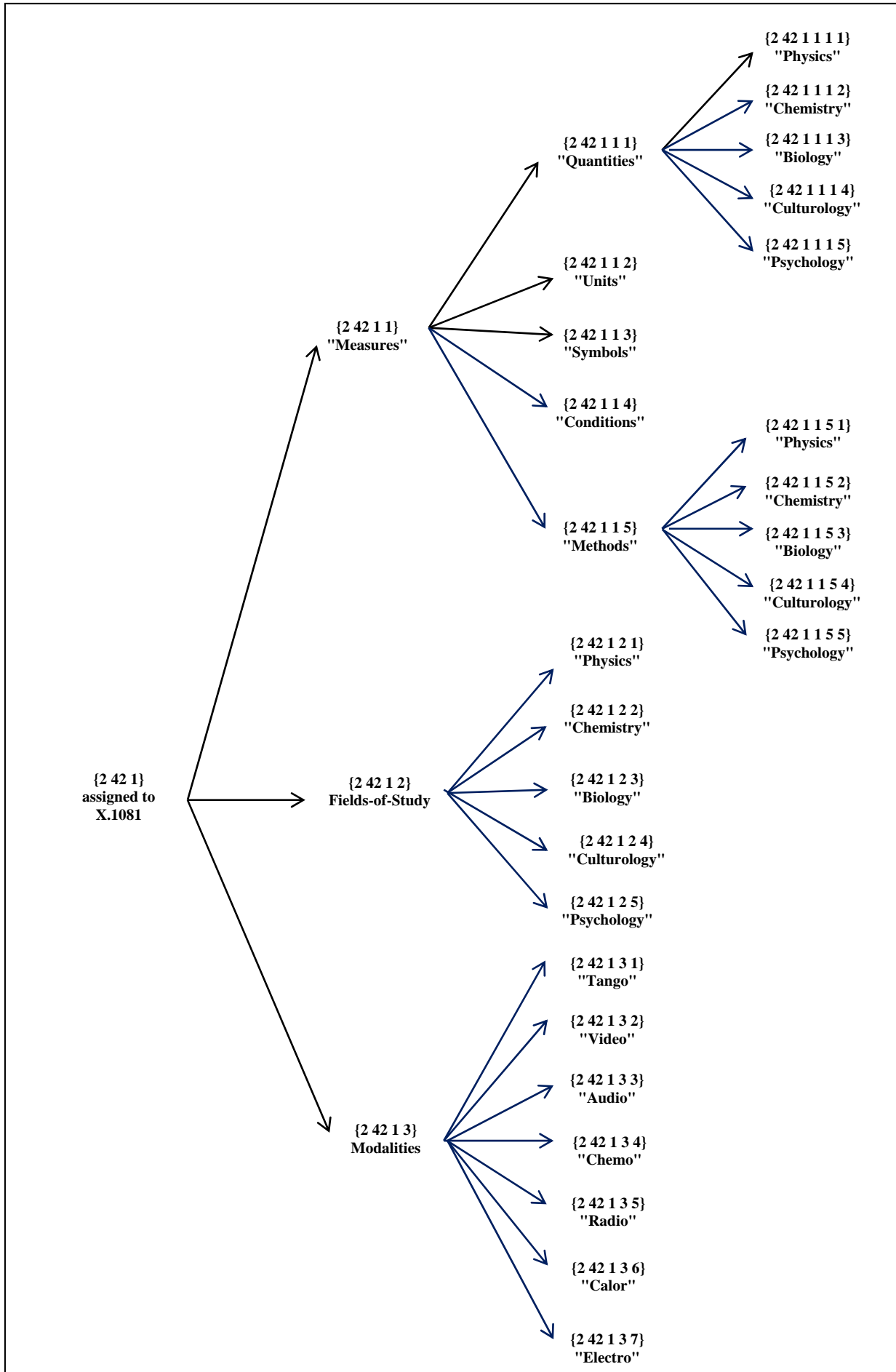
4) Clause 11

Replace the following subclause of clause 11 as follows:

11.6 This Recommendation makes use of proposals given in [18] to assign a numerical labelling for all elements of the model, recognizing all possible combinations of the five disciplines, of the 14 in/out modalities, and of the seven SI base units.

5) Clause 12

Replace the figure 3 with:



6) Annex A

Replace the clause A.2 with:

A.2 ASN.1 module.

NOTE – This module is normative text in ITU-T X.1081. Relevant parts are imported into modules in ITU-T X.1082 and into the ITU-T X.1080 series as necessary.

Telebiometrics

```
{joint-iso-itu-t(2) telebiometrics(42) modules(0) main(0) version1(1)}
"/Telebiometrics/Modules/Main_Module/Version1"
DEFINITIONS ::=
BEGIN
-- *1* OBJECT IDENTIFIER names for top-level biometric nodes
    id-telebio OBJECT IDENTIFIER ::= {joint-iso-itu-t(2) telebiometrics(42)}
    id-tmm OBJECT IDENTIFIER ::= {id-telebio tmm(1)}
    id-hum-phys OBJECT IDENTIFIER ::= {id-telebio human-physiology(2)}
    id-th OBJECT IDENTIFIER ::= {id-telebio telehealth(3)}

-- *2* OID-IRI or RELATIVE-OID-IRI names for top-level telebiometric nodes
-- Note that all RELATIVE-OID-IRI names are relative to the last OID-IRI
-- value specified in this module
    iri-telebio OID-IRI ::= "/Telebiometrics"
    iri-tmm RELATIVE-OID-IRI ::= "TMM"
    iri-hum-phys RELATIVE-OID-IRI ::= "Human_Physiology"
    iri-th RELATIVE-OID-IRI ::= "Telehealth"

-- *3* OBJECT IDENTIFIER allocations specific to ITU-T X.1081
    id-measures OBJECT IDENTIFIER ::= {id-tmm metric(1)}
    id-fields-of-study OBJECT IDENTIFIER ::= {id-tmm scientific(2)}
    id-modalities OBJECT IDENTIFIER ::= {id-tmm sensory(3)}

-- *3.1* OIDs for measures
    id-quantities OBJECT IDENTIFIER ::= {id-measures quantities(1)}
    id-units OBJECT IDENTIFIER ::= {id-measures units(2)}
    id-symbols OBJECT IDENTIFIER ::= {id-measures symbols(3)}
    id-conditions OBJECT IDENTIFIER ::= {id-measures conditions(4)}
    id-methods OBJECT IDENTIFIER ::= {id-measures methods(5)}

-- *3.1.1* OIDs for quantities
    id-quantities-physics OBJECT IDENTIFIER ::= {id-quantities physics(1)}
    id-quantities-chemistry OBJECT IDENTIFIER ::= {id-quantities chemistry(2)}
    id-quantities-biology OBJECT IDENTIFIER ::= {id-quantities biology(3)}
    id-quantities-culturology OBJECT IDENTIFIER ::= {id-quantities
culturology(4)}
    id-quantities-psychology OBJECT IDENTIFIER ::= {id-quantities psychology(5)}

-- *3.1.2* OIDs for methods
    id-methods-physics OBJECT IDENTIFIER ::= {id-methods physics(1)}
    id-methods-chemistry OBJECT IDENTIFIER ::= {id-methods chemistry(2)}
    id-methods-biology OBJECT IDENTIFIER ::= {id-methods biology(3)}
    id-methods-culturology OBJECT IDENTIFIER ::= {id-methods culturology(4)}
    id-methods-psychology OBJECT IDENTIFIER ::= {id-methods psychology(5)}

-- *3.2* OIDs for fields of study
    id-physics OBJECT IDENTIFIER ::= {id-fields-of-study physics(1)}
    id-chemistry OBJECT IDENTIFIER ::= {id-fields-of-study chemistry(2)}
    id-biology OBJECT IDENTIFIER ::= {id-fields-of-study biology(3)}
    id-culturology OBJECT IDENTIFIER ::= {id-fields-of-study culturology(4)}
    id-psychology OBJECT IDENTIFIER ::= {id-fields-of-study psychology(5)}

-- *3.3* OIDs for modalities
    id-tango OBJECT IDENTIFIER ::= {id-modalities tango(1)}
    id-video OBJECT IDENTIFIER ::= {id-modalities video(2)}
    id-audio OBJECT IDENTIFIER ::= {id-modalities audio(3)}
    id-chemo OBJECT IDENTIFIER ::= {id-modalities chemo(4)}
    id-radio OBJECT IDENTIFIER ::= {id-modalities radio(5)}
    id-calor OBJECT IDENTIFIER ::= {id-modalities calor(6)}
    id-electro OBJECT IDENTIFIER ::= {id-modalities electro(7)}
```

```

-- *4* RELATIVE-OID-IRI allocations specific to ITU-T X.1081
--   These are all relative to iri-tmm
      iri-measures RELATIVE-OID-IRI ::= "Measures"
      iri-fields-of-study RELATIVE-OID-IRI ::= "Fields_of_study"
      iri-modalities RELATIVE-OID-IRI ::= "Modalities"
-- *4.1* OID-IRIs for Fields of Study
      iri-quantities RELATIVE-OID-IRI ::= "Measures/Quantities"
      iri-units RELATIVE-OID-IRI ::= "Measures/Units"
      iri-symbols RELATIVE-OID-IRI ::= "Measures/Symbols"
      iri-conditions RELATIVE-OID-IRI ::= "Measures/Conditions"
      iri-methods RELATIVE-OID-IRI ::= "Measures/Methods"
-- *4.1.1* OID-IRIs for Quantities
      iri-quantities-physics RELATIVE-OID-IRI ::= "Measures/Quantities/Physics"
      iri-quantities-chemistry RELATIVE-OID-IRI ::= "Measures/Quantities/Chemistry"
      iri-quantities-biology RELATIVE-OID-IRI ::= "Measures/Quantities/Biology"
      iri-quantities-culturology RELATIVE-OID-IRI ::=
"Measures/Quantities/Culturology"
      iri-quantities-psychology RELATIVE-OID-IRI ::=
"Measures/Quantities/Psychology"
-- *4.1.2* OID-IRIs for Methods
      iri-methods-physics RELATIVE-OID-IRI ::= "Measures/Methods/Physics"
      iri-methods-chemistry RELATIVE-OID-IRI ::= "Measures/Methods/Chemistry"
      iri-methods-biology RELATIVE-OID-IRI ::= "Measures/Methods/Biology"
      iri-methods-culturology RELATIVE-OID-IRI ::= "Measures/Methods/Culturology"
      iri-methods-psychology RELATIVE-OID-IRI ::= "Measures/Methods/Psychology"

-- *4.2* OID-IRIs for Fields of Study
      iri-physics RELATIVE-OID-IRI ::= "Fields_of_Study/Physics"
      iri-chemistry RELATIVE-OID-IRI ::= "Fields_of_Study/Chemistry"
      iri-biology RELATIVE-OID-IRI ::= "Fields_of_Study/Biology"
      iri-culturology RELATIVE-OID-IRI ::= "Fields_of_Study/Culturology"
      iri-psychology RELATIVE-OID-IRI ::= "Fields_of_Study/Psychology"

-- *4.3* OID-IRIs for ModalitiesFields of Study
      iri-tango RELATIVE-OID-IRI ::= "Modalities/Tango"
      iri-video RELATIVE-OID-IRI ::= "Modalities/Video"
      iri-audio RELATIVE-OID-IRI ::= "Modalities/Audio"
      iri-chemo RELATIVE-OID-IRI ::= "Modalities/Chemo"
      iri-radio RELATIVE-OID-IRI ::= "Modalities/Radio"
      iri-calor RELATIVE-OID-IRI ::= "Modalities/Calor"
      iri-electro RELATIVE-OID-IRI ::= "Modalities/Electro"

```

END

