



# ETSI Standardization for (RF)ID-Systems



## Standardization for (RF)ID-Systems TCAM Statement

At its 21<sup>st</sup> meeting, Oct. 2006 TCAM stated that

- RFID Readers / Writers,
- RFID Tags active and passive

fall within the scope of the R&TTE!

TCAM: Telecommunications Conformity Assessment and Market Surveillance Committee

R&TTE: Directive ..... on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity



## Standardization for (RF)ID-Systems Advantages of Standards

- Manufacturer and/or importers have to insure and to declare the compliance of the products with the regulations
  - by fully application of existing relevant listed harmonised standards
  - providing a detailed construction file showing the compliance (in the case of none of incomplete application of such standards)

Harmonised Standards ease and accelerate the bringing into market of such products.  
Avoidance of non hamronized national standardization and regulation.



## Standardization for (RF)ID-Systems European Commission

- The European Commission says that it's far better for everyone to **implement security and privacy by design** rather than be forced to fire-fight later
- R&TTE Art. 3(3):
  - ...the Commission may decide that **apparatus within certain equipment classes** or **apparatus of particular types** shall be construed that: ....

– **→ list of requirements**



## Standardization for (RF)ID-Systems Requirements on Apparatus (R&TTE Art. 3)

- a) protection of the health and the safety of persons *Art.3(1)*  
b) electromagnetic compatibility

- effective use of the spectrum allocated *Art.3(2)*
- to avoid harmful interference

- a) interworking *Art.3(3)*  
b) harm to the network / misuse of the network  
c) privacy of data  
d) fraud avoidance  
e) emergency services  
f) facilitate its use by users with a disability



## Standardization for (RF)ID-Systems

Examples of existing Standards for Compliance Purposes (Radio Interface)

Already existing Standards unter R&TTE Art.3 (2):

- EN 300 330 (inductive RFID)
- EN 300 220 (433 MHz)
- EN 302 208 (UHF RFID)
- EN 300 440 (2,4 GHz)

(non exhaustive List)



## Standardization for (RF)ID-Systems

Types of Apparatus (TAGs)

→ privacy, fraud avoidance

- TAGs not carrying personal data nor to be used in personal context  
TAGs at transport containers, railway cars, packaging only for industrial use, temporary use in supply chain,.... → will not reach consumer
- TAGs not carrying personal data but can be used in personal context  
TAGs attached to products which will or may reach consumer or may be closely related to persons, TAGs at products which are sold to persons or will be used by persons;  
→ e.g. TAGs in form of price labels or TAGs integrated in product, strongly fixed to products (e.g. instead of barcode, product-ID,...)
- TAGs carrying personal data



# Standardization for (RF)ID-Systems

## Types of Apparatus (TAGs)

→ fraud avoidance, harm to/misuse of NW, interworking

- read only TAGs
  - personal data
  - no personal data
  - sensitive data
- read and write TAGs
  - personal data
  - no personal data
  - sensitive data
- TAGs with integrated functions, actively interacting or communicating with services and/or applications
  - personal data
  - no personal data
  - sensitive data





# Standardization for (RF)ID-Systems

## Types of Apparatus (TAGs)

→ fraud avoidance, harm to/misuse of NW, interworking

- **Power Supply**
  - by electromagnetic field of the reader/writer *(passive)*
  - by integrated battery, solar cell, other ..... *(active)*
- **Communication Function**
  - triggered by reader/writer *(passive)*
  - (also) initiated by TAG *(active)*
- **Other Integrated Functions**
  - triggered by reader/writer *(passive)*
  - autonomously controlled by TAG *(active)*



# Standardization for (RF)ID-Systems

Types of Apparatus (Reader/Writer)

→ interwork., harm to/misuse of NW, fraud avoidance, privacy

- general capabilities
  - reader only
  - writer only
  - reader+writer
- performance in communication
  - number of TAGs per timeframe
  - complexity of communication



# Standardization for (RF)ID-Systems

Types of apparatus (Reader/Writer)

→ interworking, harm to/misuse of NW, fraud avoidance

- networking capability
  - interfaces
  - protocols
- reading distance capability
  - very short
  - short
  - medium
  - long



# Standardization for (RF)ID-Systems

Requirements under T&TTE Art. 3 (3)

a) interworking

- compliance with addressing schemes used within networks
- compliance with / capability of traffic prioritisation
- secured protocols (e.g. encryption)
- compatibility with network interfaces
  - hardware
  - transport protocols
  - routing mechanisms



# Standardization for (RF)ID-Systems

Requirements under T&TTE Art. 3 (3)

b) prevention of harm to/misuse of the Network

- compatibility with standard network procedures
  - traffic control
  - routing
  - prioritisation
- compatibility of identifiers including network aspects of identification systems (NID)  
(in the case, they are intended to be used for addressing/routing)
- prevention of unauthorised use of identifiers  
(numbering, addressing)
- mutual authentication
  - on interface TAG-reader/writer
  - on network interface reader/writer
    - » transport
    - » service
    - » application



## Standardization for (RF)ID-Systems

Requirements under T&TTE Art. 3 (3)

c) privacy of data

- mechanisms to control data read process by the possessor of the tag / tagged product  
(e.g. consumer/end-user, logistic company,...)
- mechanisms to disable / to kill tags  
(by consumer / commercial end-user)  
→ Opt-In-Procedure at point of Sale
- notification of reading process
- mutual authentication between tag and reader/writer
- secured protocols / encryption procedures to prevent unauthorised listening
  - TAG-Reader-IF
  - communication within the network / services / applications



# Standardization for (RF)ID-Systems

Requirements under T&TTE Art. 3 (3)

d) fraud avoidance

## Prevention of

- unauthorised access from TAGs to the network
- unauthorised access from the network to TAGs
- unauthorised data storage on TAGs and/or in readers/writers
- unauthorised data combination
- unauthorised use of identifiers  
(numbering, addressing)
- loss of data integrity including loss of data  
(in the tag, on transport, in applications)



# Standardization for (RF)ID-Systems

## Logical Next Steps & Possible Proceeding

### Logical next Steps

- Identification and description of classes of apparatus
- Identification and description of requirements for such classes
- Developing of standards to be applied to such classes to fulfill the requirements
- Possible Proceeding

### Possible Proceeding

- Establishment of RFID (NID) Starter Group
- Proposal of Work Item(s)
- Proposal for a Mandate





## Standardization for (RF)ID-Systems

Requirements under T&TTE Art. 3 (3)

not yet discussed Phrases e and f

- Proposals for topics related to Phrases a) through d) have been discussed.
- However it might be appropriate to include
  - e) emergency services
  - f) facilitation of its use by users with disability



# Thank You for your Attention

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