Electronic Toll Collection

THALES GEA

Electronic Toll Collection

- Standardisation & interoperability
- THALES GEA offer

Standardisation & interoperability

1/ HISTORY AND DEFINITION OF THE NORM

2/ STANDARDISATION ISSUES

1/ HISTORY AND DEFINITION OF THE NORM

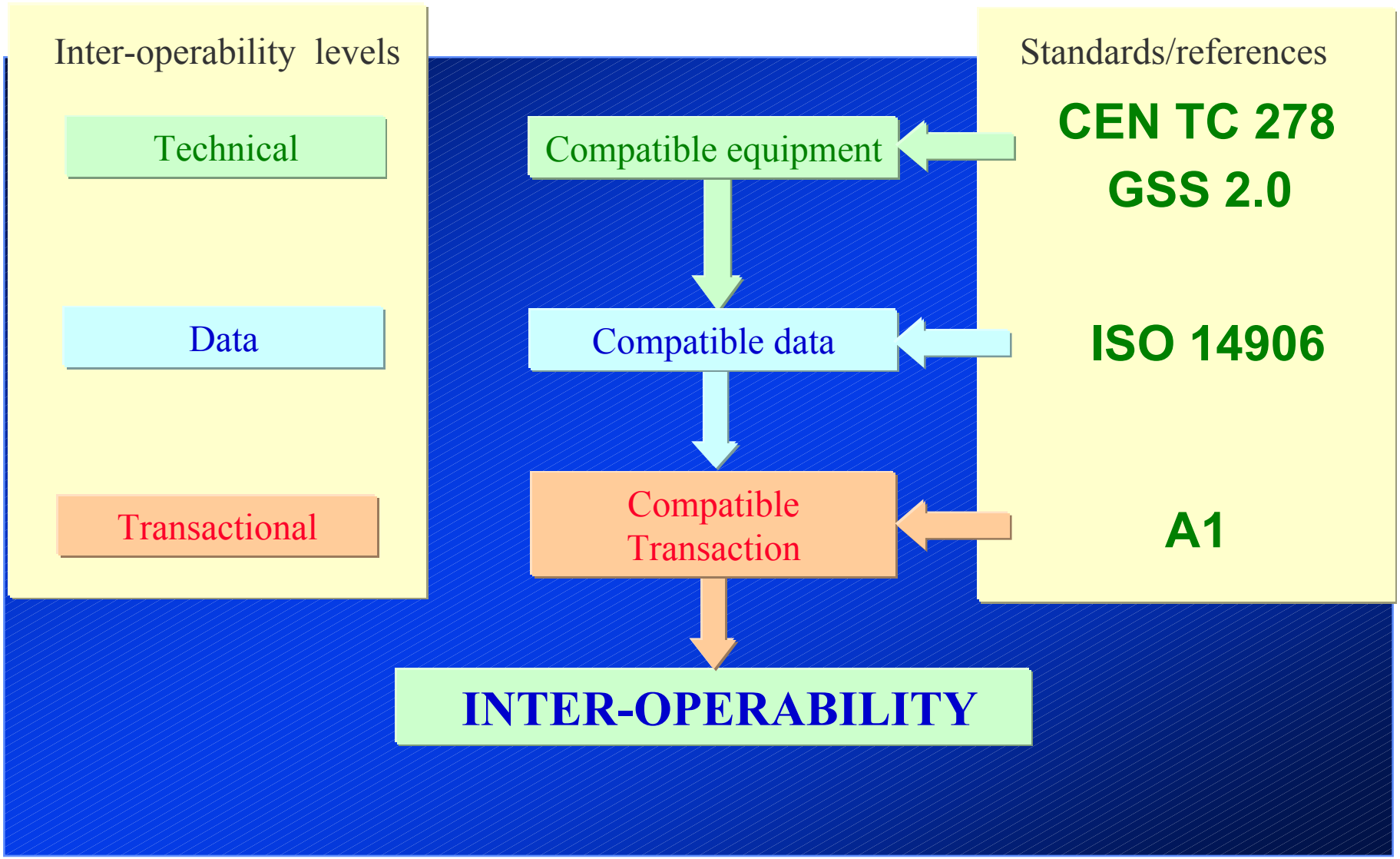
The 5.8 GHz CEN standard for Europe

- **The CEN** preliminary standard has been voted and adopted by the European states in **1997**
- The **5.8 GHz CEN system** is perfectly suitable for the needs of the motorways operators
- The **5.8 GHz** DSRC system is an open Standard enabling the interoperability of the equipment
- High frequency radio link offers :
  - **high transmission data flow**
  - **no interference with other equipment used in vehicles (radio, GSM, radar…)**
  - miniaturisation of the tags

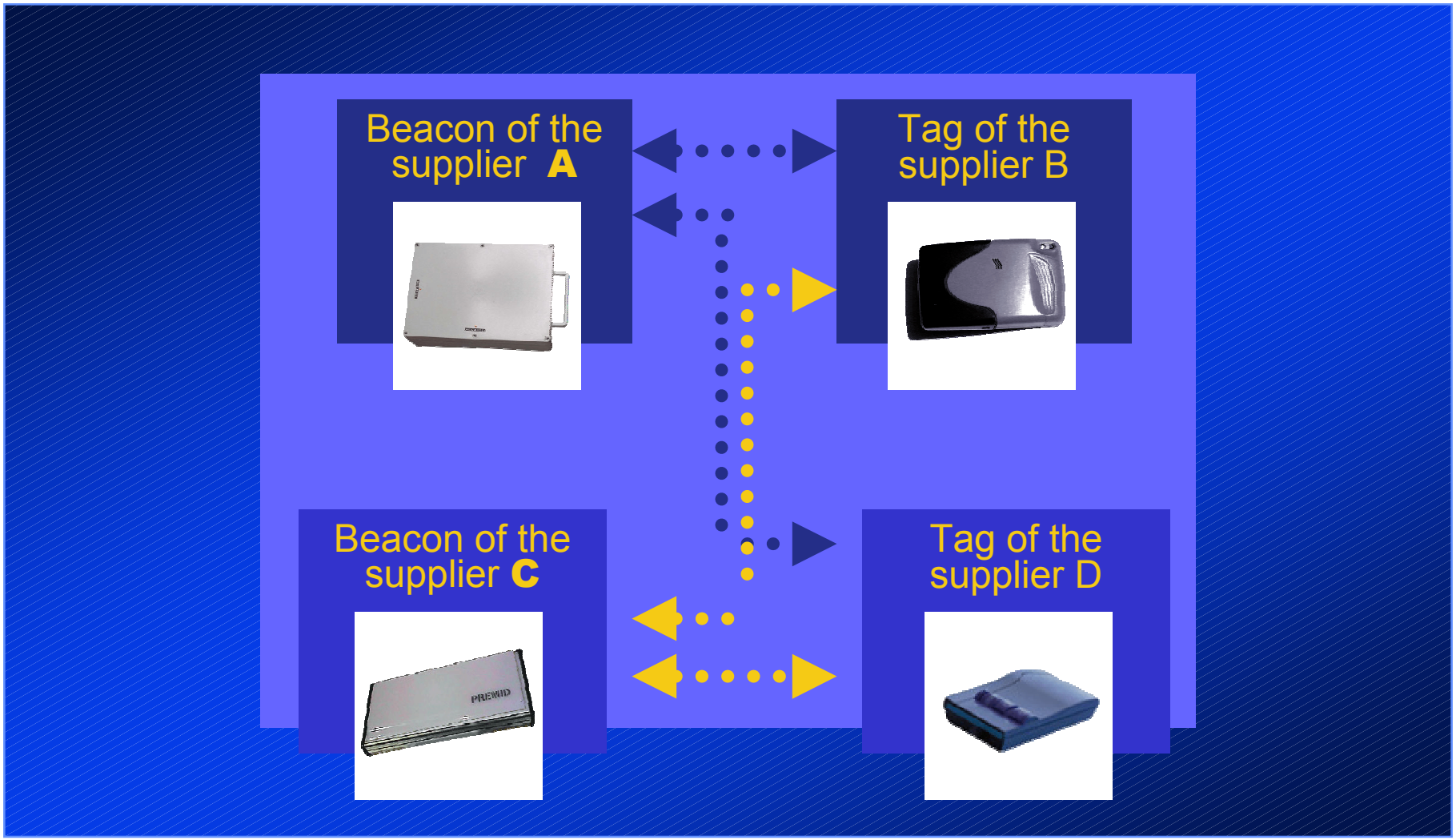
1/ HISTORY AND DEFINITION OF THE NORM

Key Points for Standards :

- Physical parameters (layer 1)
- Protocols (Layer 2)
- Commands (Layer 7)
- Data structures and semantic
- Security mechanisms


Inter-operability levels
Technical
Data
Transactional
Compatible equipment
Compatible data
Compatible Transaction
INTER-OPERABILITY
Standards/references
CEN TC 278
GSS 2.0
ISO 14906
A1

1/ HISTORY AND DEFINITION OF THE NORM



2/ STANDARDISATION ISSUES

For the customers

- Toll facilitation and easy use
- An enlarged range of services
- Best prices for equipment

For the operators

- Contractual interoperability
- Liberty and independence in choosing the suppliers
- Structures of the exchanged and shared data

2/ STANDARDISATION ISSUES

In this context of **interoperability,** t
operators have the choice among **several suppliers :**

- Technical and financials gains
  - short term and long term
- Long-term security in the supply equipment

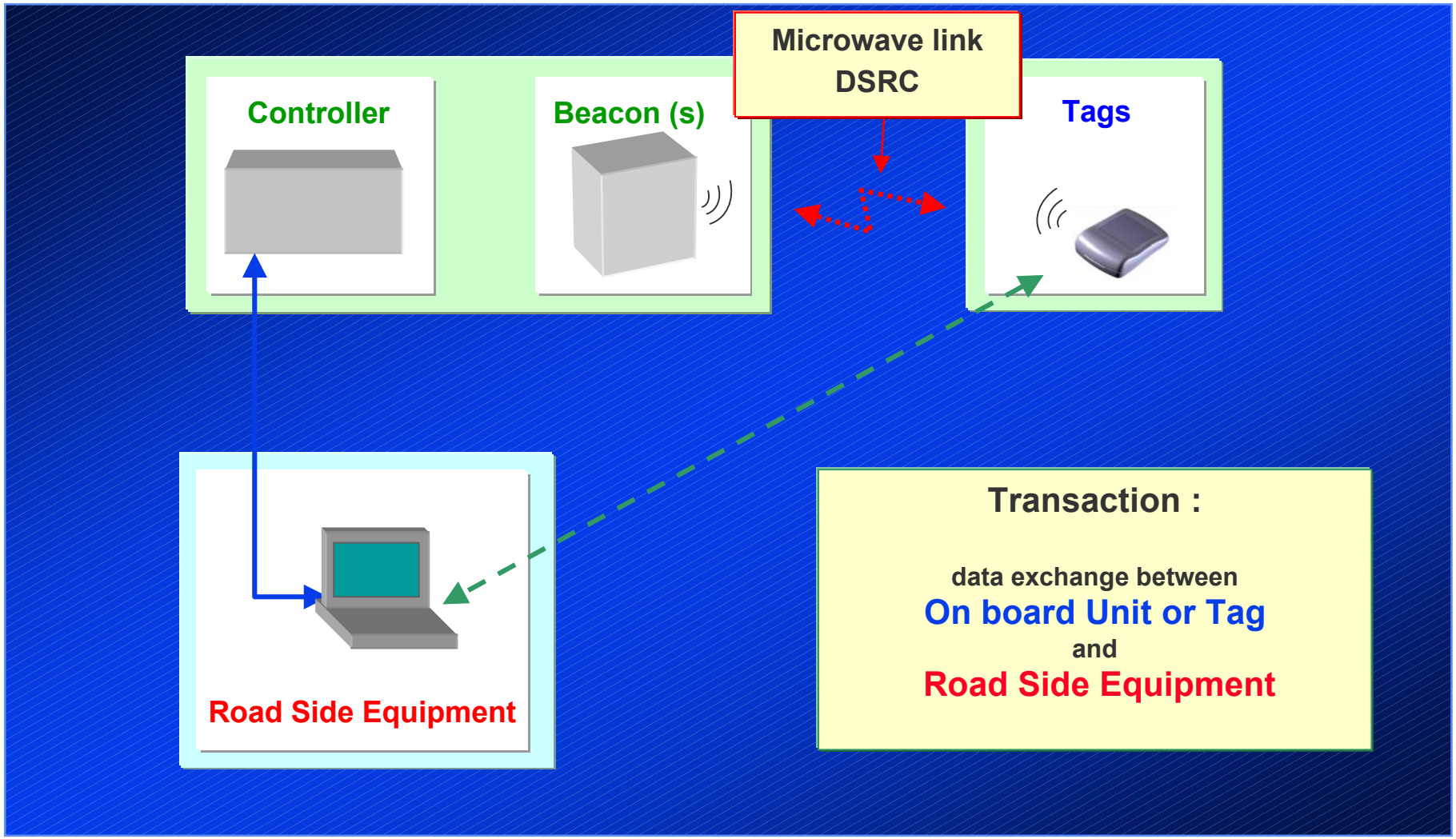
THALES G.E.A. OFFER

1/ GENERAL ARCHITECTURE OF THE SYSTEM

2/ SYSTEM COMPONENTS

3/ REFERENCES

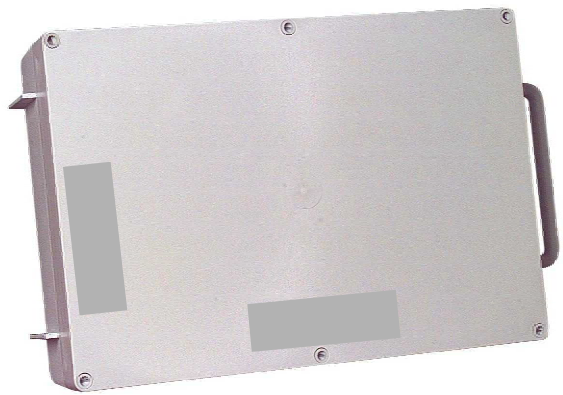
1/ GENERAL ARCHITECTURE OF THE SYSTEM



2/ SYSTEM COMPONENTS

Controller

Beacon



TAG

Kit of cables :
- for controller to beacon
- for controller

Bracket for beacon :
- for pole mounting
- for standard mounting

2/ SYSTEM COMPONENTS

Pertel beacon controller

- Power 220 V AC or 24 V DC
- High speed serial link
- Embedded power supply for beacon
- Vertical or horizontal mounting

2/ SYSTEM COMPONENTS

5.8GHz GSS BEACON

Axial mounting

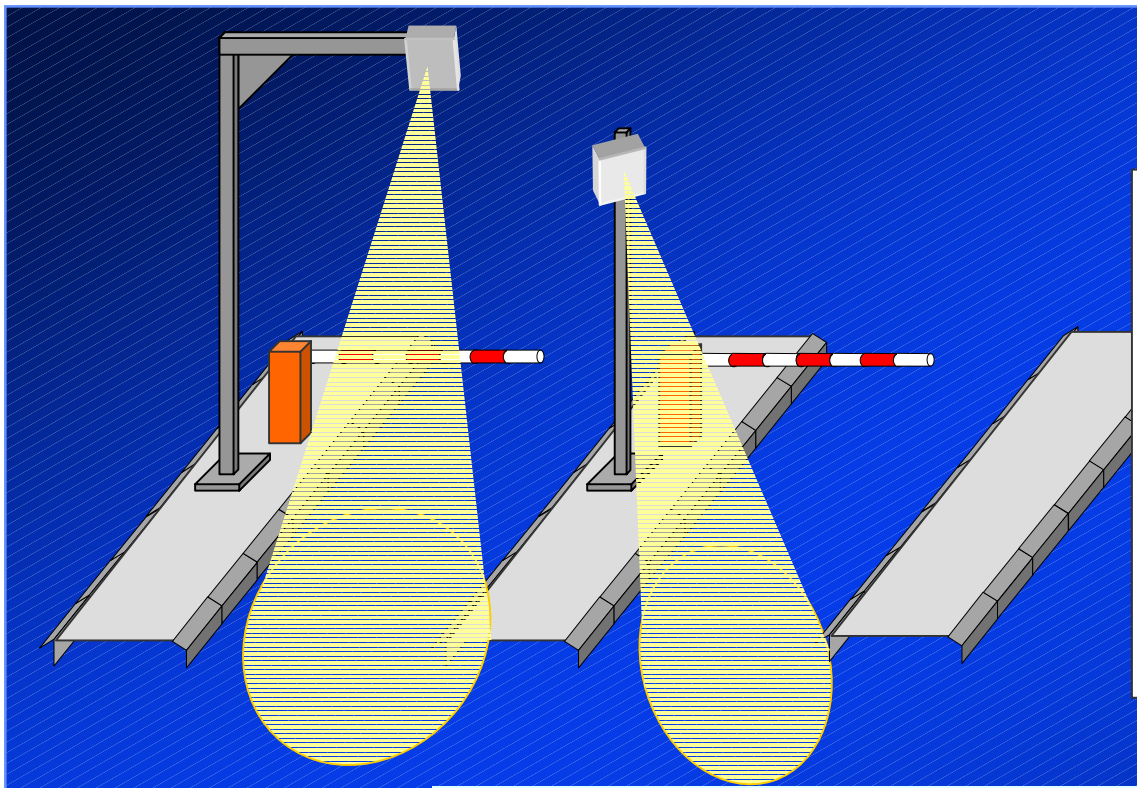
Lateral mounting

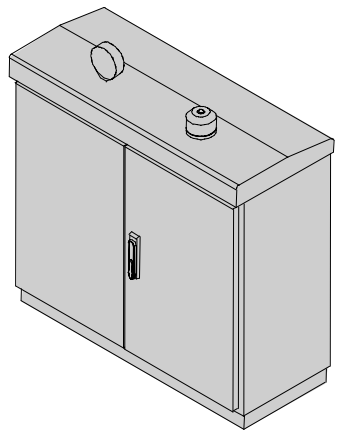
2/ SYSTEM COMPONENTS

5.8 Ghz DSRC Beacon

- 5.8 Ghz CEN DSRC
- 24 V DC
- Connection to high speed bus link
- MTBF > 30 000 hours
- MTTR < 1 hour
- Storage : -30°C / +70°
- Dry T°: -30°C/ +55 °C
- Standard CEI 529, IP55
- Electromagnetic Compliant with CEI 801-3, severity 2
- Vibrations: environment of a gantry for ETC application

2/ SYSTEM COMPONENTS





Technical cabinet

VST

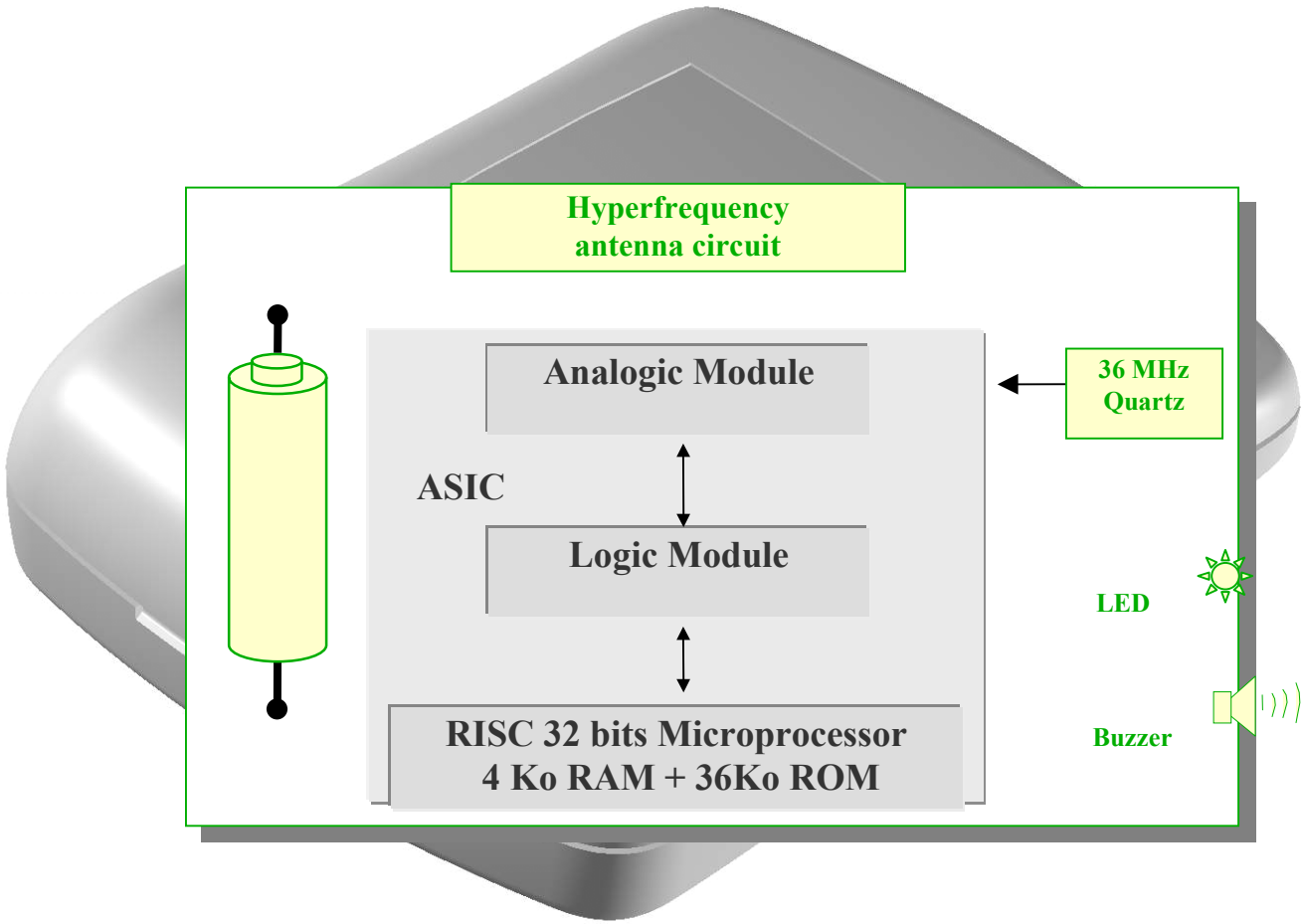
Read Write ETC monolane equipment

• additional read only ETC

2/ SYSTEM COMPONENTS

Thales-GEA OBU

2/ SYSTEM COMPONENTS



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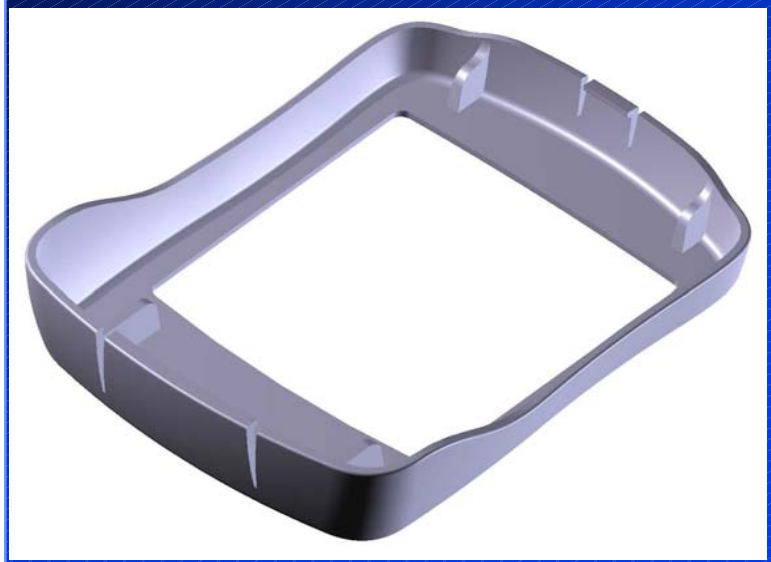

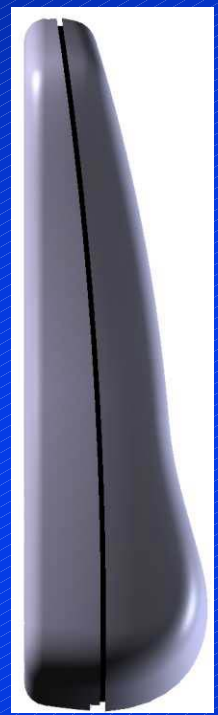

26 mm

71 mm

3/ REFERENCES

TIS PROJECT in France

Players

- THALES G.E.A. : Beacon and Tags supplier
- COMBITECH : Beacon
- Q FREE : Tags
- CSSI : Tags

CESARE PROJECT in Spain + Europe

Players

- THALES G.E.A.
- COMBITECH

3/ REFERENCES

LDP / Litrak in Malaysia

Players

- THALES G.E.A.
- COMBITECH

BELGIUM

Players

- THALES G.E.A
- COMBITECH

UNITED KINGDOM

Players

- THALES G.E.A.
- CSSI
- KAPSCH
- COMBITECH

Thank you for your attention