

How to write and use standards

- Purpose of a standard
- Usage of standards
- Compatibility levels
- Configuration
- Compliance, conformance, test & certification

Purpose of a standard

- Horizontal standards
e.g. EMC, functional safety, applicable for different application domains (verticals).
- Product standards
 - Provisions how to build products that can interoperate or interwork with products claiming compliance to the same standard
 - Profile (Provisions how to build products that can interoperate or interwork with products claiming compliance to the same standard **that is based on references to two or more other stds.**).

Usage of standards

- Vendor selection of Options/resource values (min/max)/ list of capabilities/ list of services/ etc. of a standard.
- Combine several stds in one box, etc.
- Vendor specific implementation using some elements of a std. (incompatible/ coexistent or interconnectable or interworkable).

Compatibility levels

- Interchangeability, Interoperability, Interworkability, are typically outside of the scope of IEEE 802.3 and mostly outside of IEEE 802.1
- Coexistence and interconnectability is the scope of the IEC/IEEE 60802.

(Figure is used in IEEE P2413)

| Pertinent meta-model | Needed feature | Compatibility levels | | | | | |
|----------------------------|---------------------------|----------------------|-------------|-------------------|----------------|----------------|------------------|
| | | Incompatible | Co-existent | Inter-connectable | Inter-workable | Inter-operable | Inter-changeable |
| IEEE 2413 | Dynamic performance | | | | | | |
| | Application functionality | | | | | | |
| | Parameter semantics | | | | | | |
| IoT-A, IETF, IEC, IEEE 802 | Data types | | | | | | |
| | Communication interface | | | | | | |
| | Communication protocol | | | | | | |

Configuration

- Manually configuring
- Automated configuring
 - autoneg.
 - Detection
 - etc.
- Preconfigured

Compliance, conformance, test & certification

- Claiming compliance: The IEC/IEEE 60802 will comply with the IEEE 802.1 and IEEE 802.3 standards by referencing selected content and provides constraints.
- Claiming conformance: A product conform to a standard if it at least fulfill the normative requirements of the standard. Mostly a product conform to more than one standard.
- A test & certification process can be used to claim conformance to a standard.