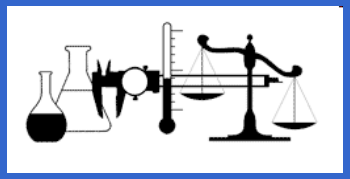


Quantities and Units of Measure Ontology Standard (QUOMOS) – Technical Project Description

Ed Barkmeyer
NIST

Mandatory scope

- Quantities
- Systems of Quantities
  - base and derived quantities, dimensions
- Measurement units
  - Systems of Units
  - Base and derived units
  - Unit derivation
- The SI Systems of Quantities and Units
  - SI base quantities and units
  - Metric prefixes
- Quantity scales

Extended scope

- Explicit units
- Extension mechanisms
  - Individual Derived quantities
  - Individual Derived units
- Non SI systems
- Units conversion
- Non-scalar quantities
- Measurement and uncertainty
- Specification and tolerance

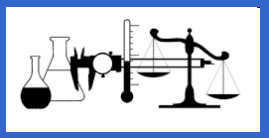
Formulation languages

- Reference formulation: CLIF
  - Axiomatic formulation using OWL relations to the extent appropriate
- Derived Normative formulation: OWLv2
  - from OWL relations in CLIF formulation
  - Some CLIF elements possibly re-formulated (with proof of consistency)
- Non-normative presentation: UML (ODM)

Modularization

- Publication as a series of modules:
  - Quantities and units
  - Systems of quantities and units
  - Derivation and dimensional algebra
  - Conversion
  - Scales
  - The SI Systems (base quantities and units)
  - Common derived units
  - Measurement and uncertainty
  - Specification and tolerance

Related Standards



- VIM (International Vocabulary of Metrology)
- ISO/IEC 80000 (SI system)
- UNECE Recommendation 20
- OASIS: UnitsML
- HL7: UCUM (Unified Code for Units of Measure)
- Other standards, as discovered

Related Ontology Projects

- NASA Sweet
  - participating expert: Rob Raskin
- NASA/ESA QUDV
  - participating expert: Hans-Pieter de Koning
- NASA/TopQuadrant QUDT
  - participating expert: Chip Masters
- Others as discovered

Questions