**Sxxx Position Measurement**

Subclass of:        S4 Observation

Scope note:   This class comprises activities of measuring positions in space and time. The measured position is intended to approximate a part or all of the extent of the presence (instance of E93 Presence) of an instance of E18 Physical Thing or E4 Period of interest, such as the outer walls of an excavated settlement, the position of a ship sailing or the start and end of athlete’s run in a competition. Characteristically, a theodolite or GPS device may be positioned on some persistent feature. Measuring the position of the device will yield an approximation of the position of the feature of interest. Alternatively, some material item may be observed moving through a measured position at a given time.

A position measurement is an evaluation of a combination of measurement of multiple associated distances and/or angles (instances of E54 Dimension) from a particular spot to certain reference points of previously known position in the same reference space. A particular role is played by the Earth’s magnetic field and rotational axis as reference for an angle or direction. Often, the observed constituting dimensions are not documented, or hidden in an electronic device software.The measured position is given as an E94 Space Primitive corresponding to a declarative place. Together with the measured time-span covering the time-critical observations it forms a spacetime volume, which should normally overlap with the spatiotemporal extent of the thing or phenomenon of interest.

**Properties:**

* Oxx1 determined position (was determined by): E94 Space Primitive
* Oxx2 has validity time-span (is position validity for): E52 Time-Span
* We may now formulate the approximation to the things of interest, e.g.
* Oxx3 overlaps with presence: E93 Presence.

**position measurement** consists of triangulation, either with two more things, or one thing and a direction from it. GPS is multiple triangulation with Greenwich and the rotational axis of earth as ref frame. Normally, directions are defined by two things present.

So, position measurement is multiple measurements of an observable situation and implicit evaluation of the coordinates relative to the ref frame.

Basically, the position measurement makes sense as a declarative place within the presence of a thing or event at the time of measurement, or covering it. “overlaps” may be precise enough.