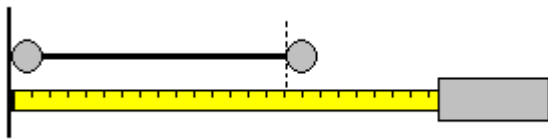


## HOW TO MAKE A CALIBRATION KIT FOR DYNAMIC WAND CALIBRATION

The calibration kit for the dynamic wand calibration method consists of a reference structure with 4 markers and a wand with 2 markers. The size of the wand and the structure depends on the size of your Field of View (FOV). It is recommended to use a wand that is approx 30-60% of the FOV. The long arm of the reference structure is usually about the same length.

### The Wand

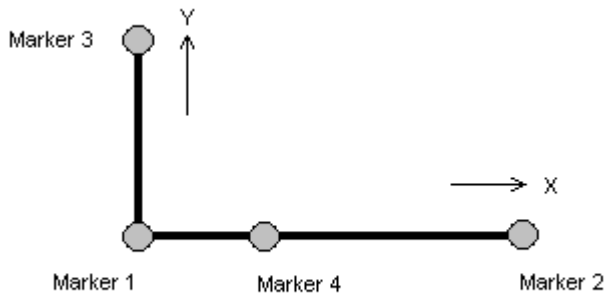
To create the wand, simply put two round markers on the end of a metal or wooden rod. The diameter of the rod should not exceed 50% of the marker diameter. To measure the distance between these 2 markers, simply use a metric ruler or measuring tape and measure the distance from the outer end of one marker to the inner end of the other. The simplest way to do this is to place one end of the wand against a wall and then measure the distance from the wall to the inner end of the second marker (see below).



### The Reference Structure

The reference structure is normally shaped as a backward L. It has 4 markers on it. These 4 markers are used to orientate the coordinate system during the calibration. In most cases, positive X is aligned with the long arm and positive Y with the short. However, this can easily be changed in the MaxPRO and MaxTRAQ software. These 4 markers can be attached to a board or an L shaped structure such as a carpenter's square. You can also simply put these 4 markers on the floor and then remove or cover them up during the trials.

The reference markers should be placed as below:



The distance between marker 1 and 4 should be 20-40% of the distance between marker 1 and 2. For example, if the distance between marker 1 and 2 is 600 mm, then place marker 4 about 200 mm from marker 1. When you have placed the markers as above, simply measure the distance between marker 1 and 2 (long arm) and the distance between marker 1 and 3 (short arm). Note that marker 3 must be placed 90 Degrees from the marker 1-2 vector.

Here are the 3D coordinates in the example above

Marker 2 - Origin:	0, 0, 0
Marker 2 – Long Arm	600, 0, 0
Marker 3 – Short Arm	0, 300, 0
Marker 4 – Middle	200, 0, 0