Glossary

.rom File

A .rom file is a tool's tool definition file.

Characterized Measurement Volume

The characterized measurement volume is the volume within the field of view where accuracy is within specified limits. The accuracy of measurements reported outside the characterized measurement volume is unknown.

Detection Region

The detection region is the total volume in which the Aurora system can detect a sensor coil, regardless of accuracy.

Euler Angles

An Euler rotation is a mathematical method of describing a rotation in three dimensions: the rotation of the object around each axis (Rx, Ry, and Rz), applied in a specific order.

Field of View

The field of view is the total volume in which an NDI measurement system can track a marker, regardless of accuracy.

Firmware

Firmware is a computer program stored in an NDI hardware device and controls the system.

Firmware Package

A firmware package is a file that will fix known issues with the firmware on a particular system and update one or more components of the system.

Frame

A frame contains the measured positions of the markers in the field of view at a particular point in time.

Global Coordinate System

The global coordinate system is used by the system as a frame of reference against which tool transformations are reported. The global coordinate system's origin is set at the Position Sensor.

Illuminators

The illuminators are rings of infrared light emitting diodes that surround the sensor lenses on the Position Sensor. The illuminators flood the detection region with infrared light, which is reflected back to the Position Sensor by the passive markers.

Local Coordinate System

A local coordinate system is a coordinate system assigned to a specific tool.

Marker

A marker is an object that can be detected and tracked by the system. See also passive marker.

Maximum 3D Error

Maximum 3D error applies to individual markers. It specifies the maximum allowable 3D error for each marker in the tool definition file.

Maximum Marker Angle

The maximum marker angle is used to determine whether a specific marker should be included in the transformation calculated for the tool.

Measurement Volume

See characterized measurement volume.

Minimum Number of Markers

The minimum number of markers parameter specifies the minimum number of markers that the Position Sensor must use in the calculation of a tool transformation in order to return the transformation.

Missing

If the system cannot determine the transformation of a marker, that marker is considered missing.

Passive Marker

A passive marker is a retro-reflective passive sphere that reflects infrared light emitted by the Position Sensor.

Phantom Markers

Phantom markers are the result of the calculation that the system uses to determine the position of a source of IR. They appear and are reported as markers, but they do not actually exist.

Position Sensor

The Position Sensor is the component of the system that provides a source of infrared light for passive markers, collects marker position data, calculates tool transformations, and sends results to the host computer.

Quaternion Rotation

Quaternion rotation is a mathematical method of describing rotations in three-dimensional space, using four-dimensional objects that are represented as ordered quadruples (q0, qx, qy, qz).

Reference Tool

A reference tool is a tool whose local coordinate system is used as a frame of reference in which other tools are tracked.

RMS

Root Mean Square (RMS) error is the square root of the mean of the squares of the individual distance errors along the x, y, and z-axes.

Stray Marker

A stray marker is a marker that is not part of a tool.

SROM Device

An SROM device is a memory device located inside an active tool. A tool definition file can be programmed into the SROM device so that the tool can carry its own information for automatic retrieval by an NDI measurement system.

Tool Definition File

A tool definition file stores information about a tool. This includes information such as the placement of the tool's markers, the location of its origin, and its manufacturing data. A tool definition file has a .rom file extension.

Tool Tip Offset

The tool tip offset is the vector between the tip of the tool and the tool origin.