

# Overview

The .decimal astroid Planning App is used for treatment planning of proton radiation therapy treatments. The astroid Planning App is an interactive end user application that leverages the existing .decimal Dosimetry App functions for device creation, dose calculation, and optimization.

Access to the astroid Planning App is provided by the thinknode™ framework using http json formatted requests. thinknode™ provides the 'backbone' used to send and receive requests, maintain users, realms and organizations, and provide data storage and management.

Note this product is in the development pre FDA 510(k) stages.

## User Guide

The Dosimetry App [user guide](#) lists all available api function calls, as well as gives examples of usage and explanation of the affects.

**Getting Started** Connecting to thinknode™ api and initial setup of the astroid Dosimetry App.

**Proton Delivery System** Details about coordinate systems and beam representations.

**Function Categories** Dose Calculation Functions (DCF), Design Task Functions (DTF), and Radiotherapy Support Functions (RSF) available through the thinknode™ api.

**Calc Provider Examples** thinknode™, DCF, DTF, and RSF example projects and usages.

**Known Limitations** Known application limitations, defects, or inconsistencies.

**Data Types** astroid Dosimetry App datatypes available through the thinknode™ api.

## Commissioning Guide

The Dosimetry App [Commissioning Guide](#) outlines and walks users through the process of creating a machine model of a clinical proton therapy beamline.

**Getting Started** Setup and data collection.

**Testing Responsibilities** Here's what you have to test before clinical use can begin

**Data Requirements** Lists and describes the data needed for commissioning a proton beam model.

**Example Data** Here's an example machine model

# Instructions For Use

The Dosimetry App [Instructions For Use](#) outlines the intended use and user requirements of using the Dosimetry App.

**Overview** Intended use and indications for use of **User Profile** Recommended user education and the application. experience level.

**Warning** Warning of potential misuse.

**Testing Responsibilities** Testing responsibilities for ensuring correct setup and configuration of the astroid Dosimetry App.

**Product Features** High level features of the astroid Dosimetry App.

## Reference Documentation

**Hong et al** A pencil beam algorithm for proton dose calculations

**Slopsema** Incorporation of the aperture thickness in proton pencil-beam dose calculations

**IAEA-TRS-430** Commissioning and Quality Assurance of Computerized Planning Systems for Radiation Treatment of Cancer

**IAEA-TECDOC-1583** Commissioning of Radiotherapy Treatment Planning Systems: Testing for Typical External Beam Treatment Techniques

**Park Commissioning** Commissioning a Proton Therapy Machine and TPS

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