

decimal3D Instructions for Use

Overview, Indications for Use, and Intended Use

The primary purpose and intended use of this device is to improve the efficiency of designing patient specific radiation therapy beam-shaping block devices through the use of optical scanning technology. This device will serve as a direct replacement to the current processes for designing such radiotherapy devices in cases where a “clinical patient set up” is used (i.e. cases where the treatment field is determined by direct physician examination, not by internal imaging technology). One such common current process is for electron therapy clinical setups, which involves hand drawing of the patient-specific aperture shape onto a semi-transparent “template” block, using the treatment light field to verify accuracy against the treatment area that has been outlined directly on a patient by the treating physician. This now flattened and projected aperture shape can then be scanned and digitized allowing for computer controlled fabrication. This new decimal3D device will replace this process by providing a means to accurately scan and digitize the treatment area. After the surface scan is obtained, this device also provides a means for designing and ordering the required devices (e.g. digitization of the field for electron apertures), analogous to the current digitization process in the existing clinical workflow.

This product is not intended to replace CT imaging or other internal imaging modalities and should be used only in cases where a qualified Radiation Oncologist has made appropriate determination of the acceptability of a “clinical set up” approach, independent of any information provided by this application. In other words, the role of this product is to simply ensure efficient and accurate ordering of a patient-specific device from our company, in cases where a licensed Radiation Oncologist has predetermined that such a device and treatment approach is appropriate for the patient at hand. Thus this device’s indications for use include patients with a variety of cancer and disease conditions, which will be treated under the direct supervision and guidance of a radiation oncologist that has prescribed a desired dose of radiation to be delivered to the patient.

User Responsibilities

It is the user's responsibility to test each device ordered through decimal3D for proper function, fit, and clinical acceptability **prior to use on a patient**. The user must also agree to the *Terms and Conditions* as well as the *Processing Agreement* prior to ordering a device for patient use.

Clinical Safety

It is the responsibility of the user to perform end-to-end testing prior to the clinical use of decimal3D. The user should follow accepted industry guideline and clinical experience for the end-to-end testing. This testing should be performed by qualified personnel and should ensure (at a minimum) that users are able to scan, digitize, and order an electron block that meets or exceeds the clinical accuracy as compared to the clinic's current process for clinical electron set ups.

It is the responsibility of the facility to ensure that all users of the decimal3D have had training on the decimal3D App and possess the appropriate clinical education and experience to properly use the application.

Warning

It is critical that all users read these Instructions for Use and the User Guide material carefully and completely and consult the provided User Guides and other training materials to ensure proper use of the application.



Prior to the delivery of any treatment on a patient, users are responsible for performing patient specific QA to ensure clinical acceptability of the delivered treatment device. Since users are responsible for testing the acceptability of the delivered dose before treatment, .decimal, its staff, and representatives shall not be liable for any mis-treatments that may result from use of its software or devices.

Caution: Federal law restricts this device to sale by or on the order of a physician.

User Profile

The decimal3D App should be used under the guidance of a physician by authorized users such as physicists, certified medical dosimetrists, radiation therapists, and other licensed clinical staff who have been trained by the .decimal staff or by the clinical staff.

Product Features

decimal3D is a medical software accessed on an iPad and managed through the Apple App Store® (users must create an account with Apple to manage their iPad software installations). decimal3D allows users to enter standard patient information, capture a three dimensional scan of the physician drawn treatment area, digitize the exact shape of the treatment field, and place a beam to complete the design of a patient-specific electron aperture. The decimal3D App also allows the user to order the aperture for fabrication and delivery by .decimal. Ordered Treatment Devices can also be exported to R&V and other software systems via the built in DICOM file sender. Additional patient data, such as Patient Setup photos, can be exported via the patient's profile screen.

Application Features

The following descriptions are thorough guides providing complete information about each task within the decimal3D application.

- [Standard Block Library](#)
- [Software Settings](#)

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System Availability and Data Integrity

The decimal3D App is installed on a standard Apple iPad and uses the Structure Sensor Mark II by Occipital. These off-the-shelf hardware components are covered by manufacture warranties, which can be extended to ensure continuous support and service for all components of the decimal3D system. All system data is stored locally on the iPad using secure encryption technology. As this application stores patient protected health information (PHI), clinics should secure the iPad following their internal Mobile Device protection policies to ensure protection of patient data and maintain HIPAA compliance. Remote tracking and lockout software is highly recommended to ensure the iPad data can be locked, deleted, and recovered in the event an iPad is lost or stolen.

It should be noted however, that decimal3D nor its host iPad should be used as the sole location to store critical patient treatment record information. As a mobile device, iPads can be prone to potential loss or damage. Once an order has been placed however, .decimal securely stores the treatment device information on its servers for the time period required by the US FDA and users may request this information, if necessary, in the event of local data loss. As such, users should take care to digitize and place orders in a timely fashion and transfer ordered treatment device data from decimal3D to the appropriate patient record database via our DICOM export feature on a regular basis.

Coordinates and Units of Measure

The following is a list of several important items that users should understand in regards to the information displays in the decimal3D Application:

- All linear dimensions are shown in centimeters (cm)
- All angular dimensions are shown in degrees (deg)
- All date/time values are provided in a *mm/dd/yyyy h:m:s am/pm* format using local time
- All date and time information should match current iOS date and time, including proper use of daylight savings time where appropriate (note: decimal3D will display in am/pm format, while iOS may display in 24 hr format depending on local settings)

Data Validation

Users are responsible for confirming the accuracy of machine data using decimal's p.d App. This data will be used in decimal3D for determining available electron applicator sizes and tray locations. Users should

complete a site survey found at <https://dotdecimal.com/site-survey/> if they do not have an account with .decimal. .decimal staff will aid users in setting up machines.

Unauthorized Use and Access Control

decimal3D will contain sensitive patient information that is protected under various governmental regulations, therefore users must ensure they adequately follow all appropriate and applicable rules regarding how, where, and when their staff may access the application and its data. Since all application and data access requires user login credentials, it is important that site administrators implement a strong password policy and that all users understand the importance of maintaining secrecy of their password (i.e. passwords should never be shared among more than one user). It is these user credentials that protect the system and its data from unauthorized access and replication. Please note that in addition to the iPad passcode or biometric access protections, decimal3D requires a separate user-specific login to ensure that all PHI is protected by non-shared access account credentials.

System Calibration

The decimal3D application relies on both the Structure Sensor Mark II and built-in iPad color camera. Proper operation of the decimal3D App requires that these two components be properly calibrated to ensure accurate alignment of scanned image colorization. A calibrator app has been provided with your iPad and the system is shipped pre-calibrated. However, part of the regular maintenance of the decimal3D application is for users to verify and adjust the calibration every 6 months OR anytime the Mark II Sensor is removed from the iPad OR anytime the system is subjected to an impact (e.g. fall or drop) that may have jarred or shifted the Sensor. The calibration procedure is simple and the provided calibrator app walks users through adjusting and testing the system's calibration.

Patient Data Export

The decimal3D application provides multiple ways to export patient data for other systems. Ordered treatment devices may be exported to R&V as well as other external software using the DICOM share functionality on a selected scan. This functionality requires a hostname and port to be provided in the Advanced Settings screen of the application.

Additionally, Patient Setup photos may be taken, managed and exported via any patient detail screen. The gallery of images can be saved to external devices (ex: SD cards) using the Files application available on all iPads and a Lightning to SD Card or USB-C to SD Card adapter (for iPad pro devices).

In both cases, caution should be taken that proper destinations are selected to protect patient data.

Known Limitations

Below are listed the known application limitations, defects, or inconsistencies.

1. Site information including Machine and Address Settings cannot be edited from decimal3D (these can be edited using .decimal's p.d software available on Windows computers)
2. User passwords cannot be changed within the decimal3D App (please log in to direct.dotdecimal.com to change your password or contact .decimal customer service to request a password reset)
3. Patient Databases are stored locally on each iPad, so facilities with more than one iPad will not be able to access all patient records from each iPad (note: once an Order is place however, the order information is available via direct.dotdecimal.com, which can be accessed from any device or computer)
4. Scans are able to be deleted even if they contain contours and beams, so care should be exercised whenever deleting scans as all data associated with that scan will also be deleted
5. Very bright indoor lighting can interfere with scanning, especially on dark or shiny surfaces; if you experience difficulty with the scanner recognizing a surface, try scanning in a lower light condition
6. Long term application use without an application restart can produce errors where scans fail to render in the display; the app should be closed fully and restarted to correct the issue
7. Any unsaved changes will be lost if the application logs out the user due to 10 minutes of inactivity (however, changes may appear saved if the application is not fully restarted).
8. Existing patients created in older versions of the application may not show patient name in all UI fields (data is not lost, but is not visible on all screens).
9. Scanners may lose connectivity to the iPad, giving a message stating "please connect structure sensor", even though the sensor is plugged in. Following the scanner manufacturers troubleshooting guide can help to resolve the issue: [Structure Mark II Connectivity Help](#)

For the release notes for each version of the decimal3D Application, please refer to [decimal3D Version History](#).

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