

## DICOM Toolkit Worked Examples

### *Tested Combinations:*

| OTM System        | Linac           | TPS        | OMS    |
|-------------------|-----------------|------------|--------|
| SunCHECK™ Patient | Elekta VersaHD  | Monaco     | Mosaiq |
| SunCHECK™ Patient | Elekta VersaHD  | Raystation | Mosaiq |
| SunCHECK™ Patient | Varian TrueBeam | Eclipse    | Aria   |
| Mobius3D          | Elekta VersaHD  | Pinnacle   | Mosaiq |
| iRT IQM           | Elekta VersaHD  | Pinnacle   | Mosaiq |
| EPIGray           | Elekta VersaHD  | Pinnacle   | Mosaiq |
| iViewDose         | Elekta VersaHD  | Pinnacle   | Mosaiq |

### *Worked Example: SunCHECK™ Patient (SunNuclear Corporation) + Varian TrueBeam + Eclipse + Aria (Varian Medical Systems, Palo Alto, CA)*

1. Anthropomorphic phantom scanned at CT and sent to Eclipse.
2. Treatment plan created with one treatment beam and sent to SunCHECK.
3. Several copies of the treatment plan are made in Eclipse, changing only the plan IDs and field IDs to denote the anticipated modifications. These copies are sent to SunCHECK.
4. The copied plans are exported as DICOM files to the same directory as the toolkit. The toolkit creates modified versions.
5. The original field is treated as normal.
6. The modified RT files are transferred to the treatment machine and treated in RT file mode.
7. SunCHECK recognises the modified plans as their respective plan copies.

***Worked Example: Mobius3D (Varian Medical Systems, Palo Alto, CA) + Elekta VersaHD + Pinnacle + Mosaik (Elekta Oncology Systems Ltd)***

1. Solid water-equivalent block scanned at CT and sent to Pinnacle.
2. Treatment plan created with one treatment beam. Exported to DICOM RT file, Mosaik, and Mobius 3D.
3. DICOM RT Plan file placed in the same directory as the toolkit, toolkit creates modified versions.

*Note that Mobius 3D uses the first control point's jaw, MLC, collimator, and gantry positions to match a field against the expected plan. If these are modified outside of the acceptable tolerances (1cm/4°), Mobius 3D will fail to associate the beam.*

4. Modified files transferred to Mosaik with a DICOM tool, such as "DCMTK dicomsend" / "Conquest" / "DCMTree".
5. Modified and Original fields promoted in Mosaik using field names to differentiate.
6. Original plan delivered on treatment machine in QA mode. Mobius 3D recognises this as the "QA Check".
7. Modified fields delivered on treatment machine in QA mode. Mobius recognises these as fractions of the same plan.