Plan

Plan ID: IM170
Description: IMRT plan with 9 equidistant fields
Creation time: 11 October 2022 23:08:04 (UTC+0)
Plan created for: Phase 1 fractions 1-28 (28 Fx)
Plan is used for: Phase 1 fractions 1-28 (28 Fx)
NOTE: Please refer to the latest RT intent report for an up-to-date number of fractions for which the plan is to be used.

Diagnosis

Anatomical site: Lower esophagus
Diagnosis: Esophagus

Phase

Template:

Phase 1	2 targets	28 fractions
PTV	47.88 Gy	1.71 Gy/fx
PTVnoHeart	50.40 Gy	1.80 Gy/fx

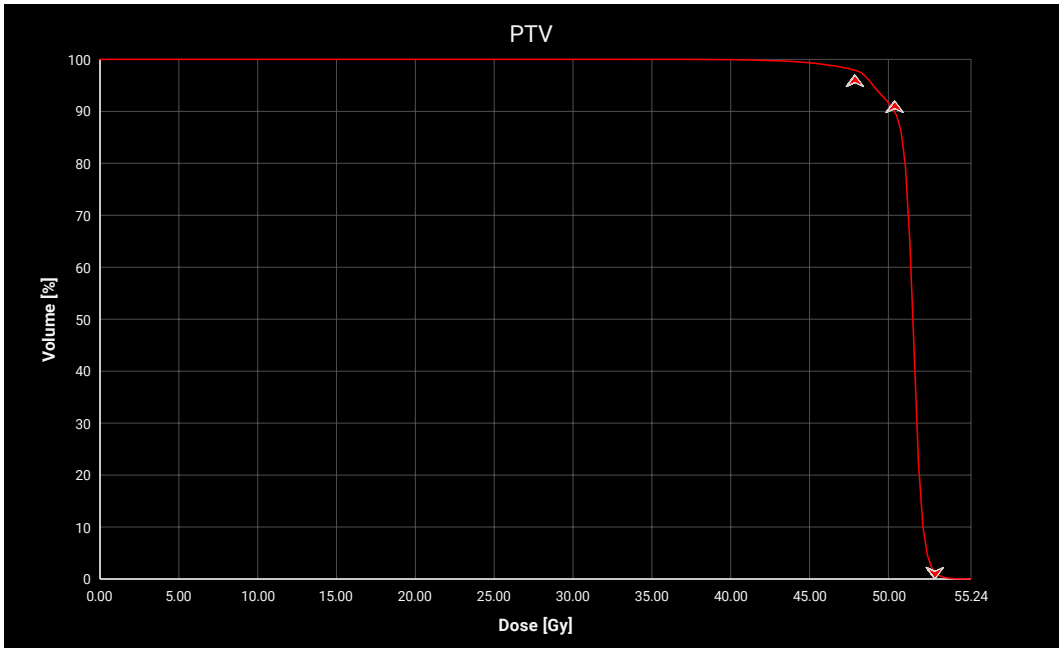
Plan type: Adaptive
Treatment frequency: One session per treatment day
Normalization to PTV: V50.40 Gy 90.0 %
DVH estimation model: Esophagus2019PlanChallengeFinal
Bolus: No

Clinical Goals and Achieved Values

Targets

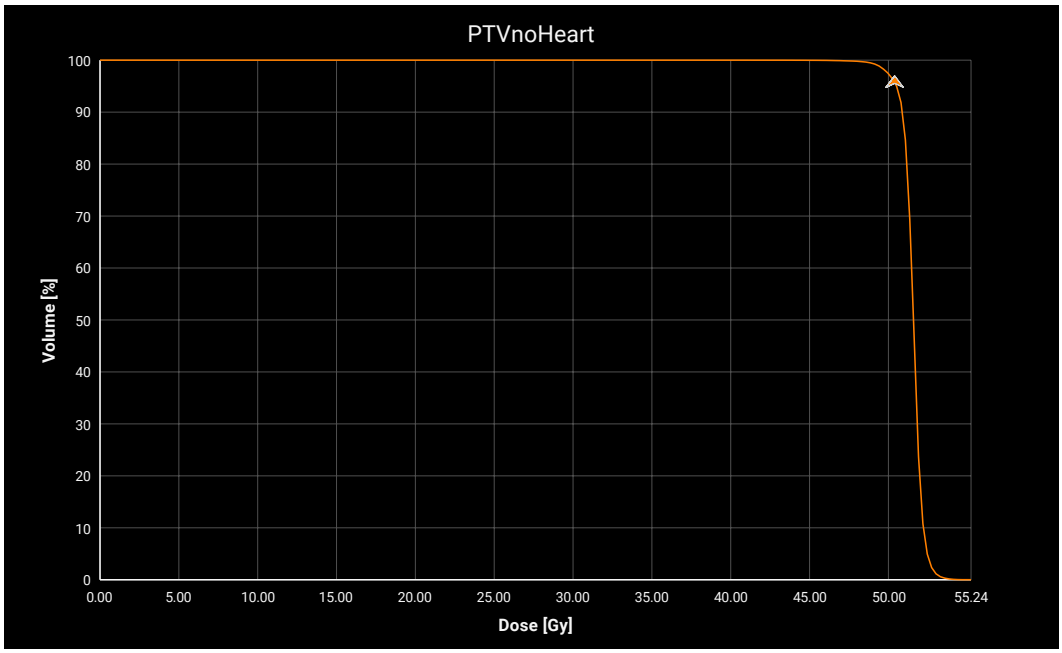
PTV

	Goal	Achieved Value	Goal status
P1	V50.40 Gy ≥ 92.0 % (350.74 cm3) Var: V50.40 Gy ≥ 90.0 % (343.12 cm3)	90.0 % (343.14 cm3)	Within variation
P1	V47.88 Gy ≥ 97.0 % (369.80 cm3) Var: V47.88 Gy ≥ 95.0 % (362.18 cm3)	97.9 % (373.22 cm3)	Met
P1	D0.03 cm3 ≤ 52.95 Gy Var: D0.03 cm3 ≤ 56.95 Gy	55.31 Gy	Within variation



PTVnoHeart

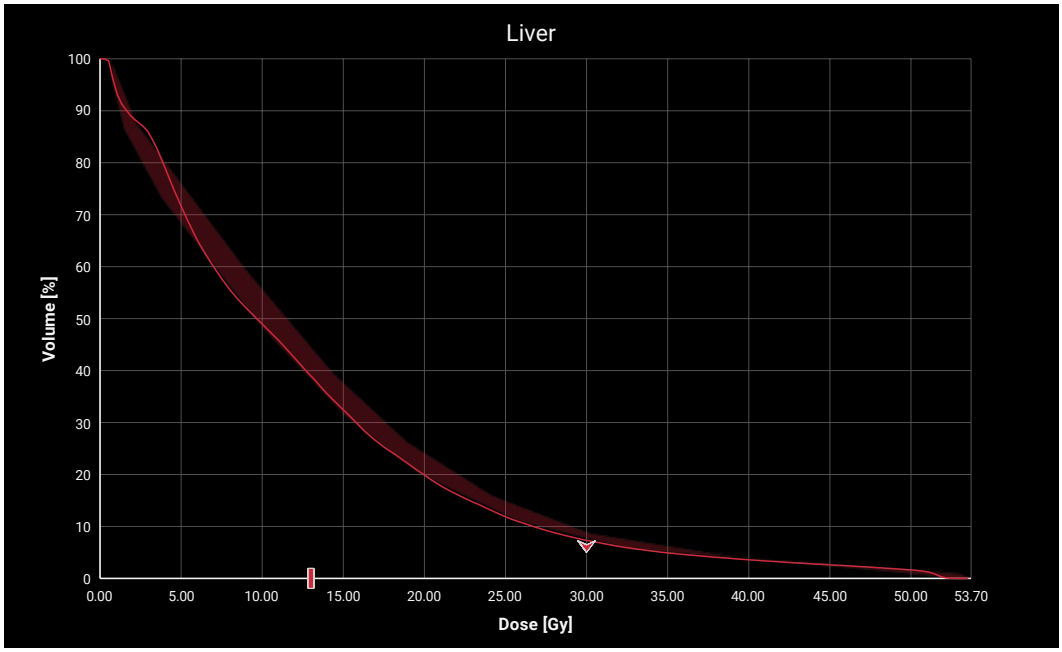
	Goal	Achieved Value	Goal status
P1	V50.40 Gy ≥ 97.0 % (347.11 cm3) Var: V50.40 Gy ≥ 90.0 % (322.06 cm3)	95.8 % (342.79 cm3)	Within variation



Organs

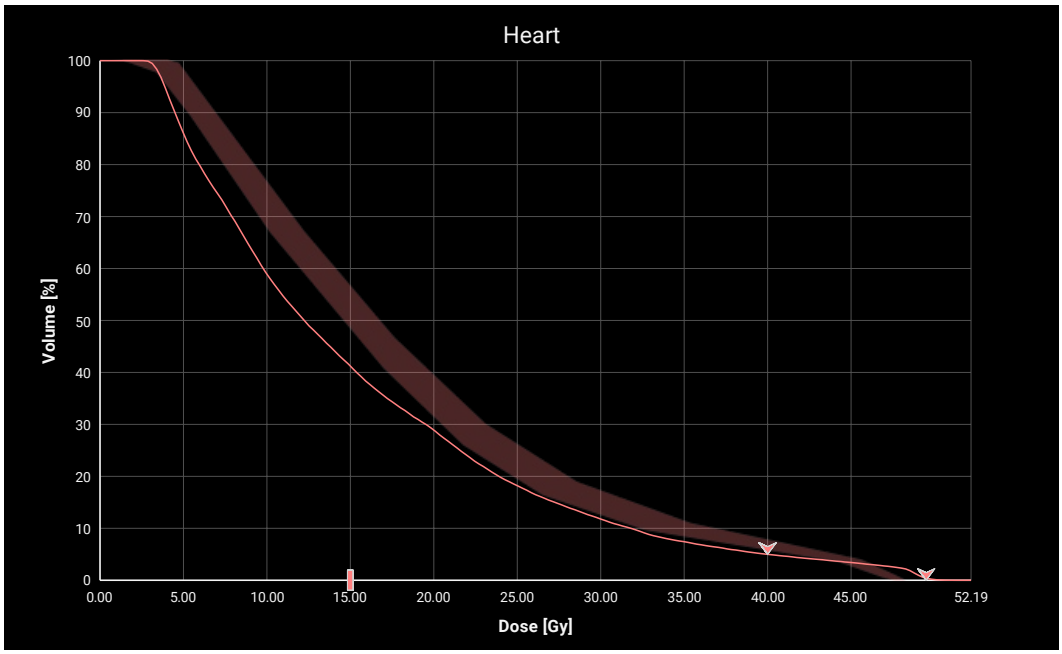
Liver

	Goal	Achieved Value	Goal status
P3	Dmean ≤ 13.00 Gy Var: Dmean ≤ 25.00 Gy	12.63 Gy	Met
P3	V30.00 Gy ≤ 5.0 % (74.55 cm3) Var: V30.00 Gy ≤ 40.0 % (596.38 cm3)	7.3 % (109.17 cm3)	Within variation

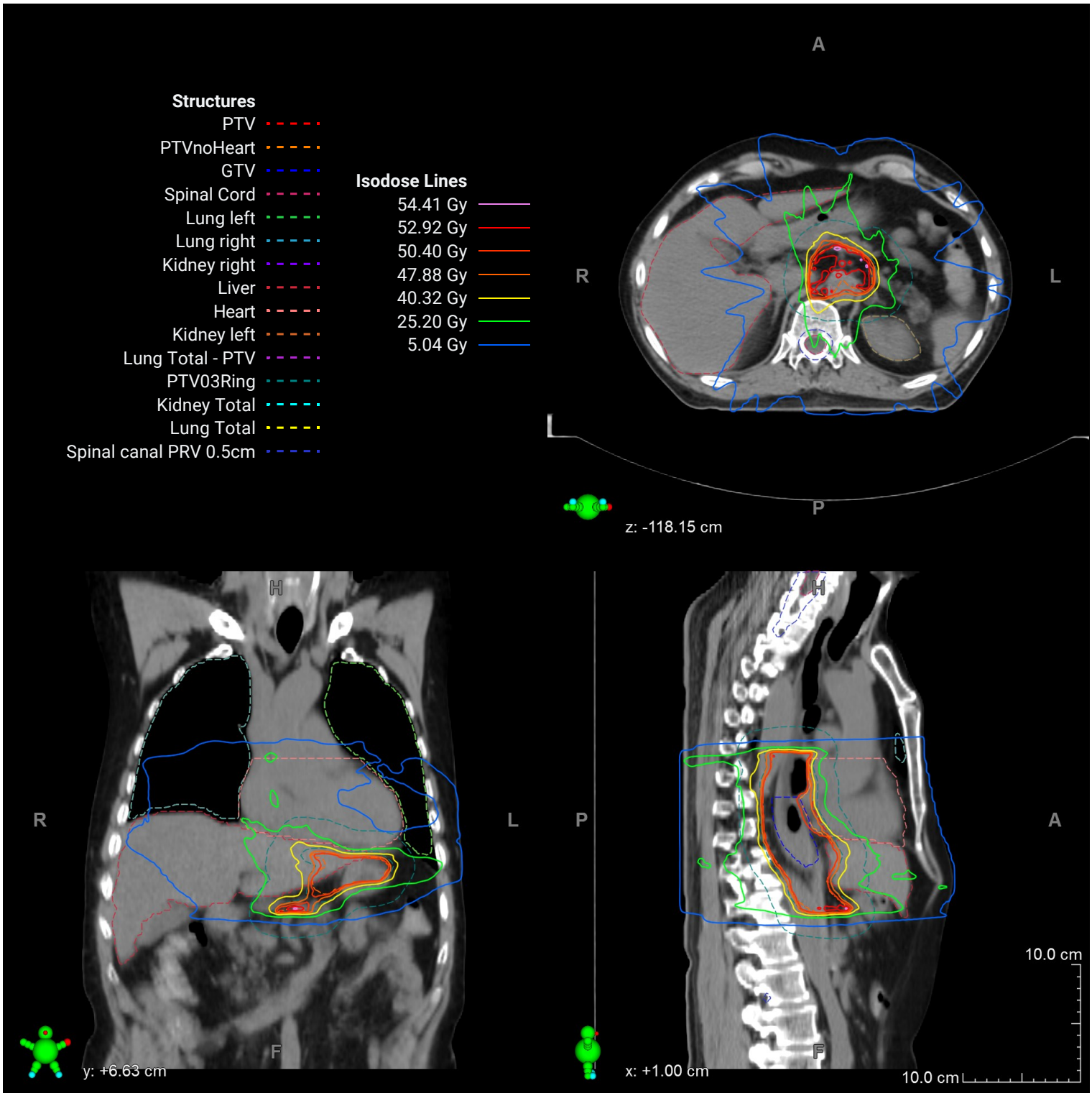


Heart

	Goal	Achieved Value	Goal status
P1	D0.03 cm3 ≤ 49.50 Gy Var: D0.03 cm3 ≤ 52.00 Gy	50.96 Gy	Within variation
P1	Dmean ≤ 15.00 Gy Var: Dmean ≤ 31.00 Gy	15.66 Gy	Within variation
P2	V40.00 Gy ≤ 5.0 % (33.83 cm3) Var: V40.00 Gy ≤ 55.0 % (372.18 cm3)	5.0 % (33.70 cm3)	Met



Global Maximum Dose: 55.52 Gy



Warnings and errors

Plan validation

Warnings

1. The image CT scanner Philips GEMINI TF Big Bore Unknown has not been calibrated. Using calibration curves from default CT scanner DefaultCTScanner instead.

Plan

Planning directive

Phase 1	28 fx	3 targets
PTV	47.88 Gy	1.71 Gy/Fx
PTVnoHeart	50.40 Gy	1.80 Gy/Fx
GTV	50.40 Gy	1.80 Gy/Fx

Normalization goal: PTV: DVH point 90.0% 50.40 Gy
Normalization factor: 1.005

Treatment unit

TPS name:	Ethos Treatment Planning	Particle type:	Photon
Treatment units:	RDSMCH1	Energy:	6 MV
Dose calibration depth:	1.30 cm	Primary fluence mode:	FFF

Fields

Treatment orientation: HFS

Isocenter 1
Position (DICOM) X: 2.47 cm Y: 10.07 cm Z: -112.66 cm
Scale IEC61217

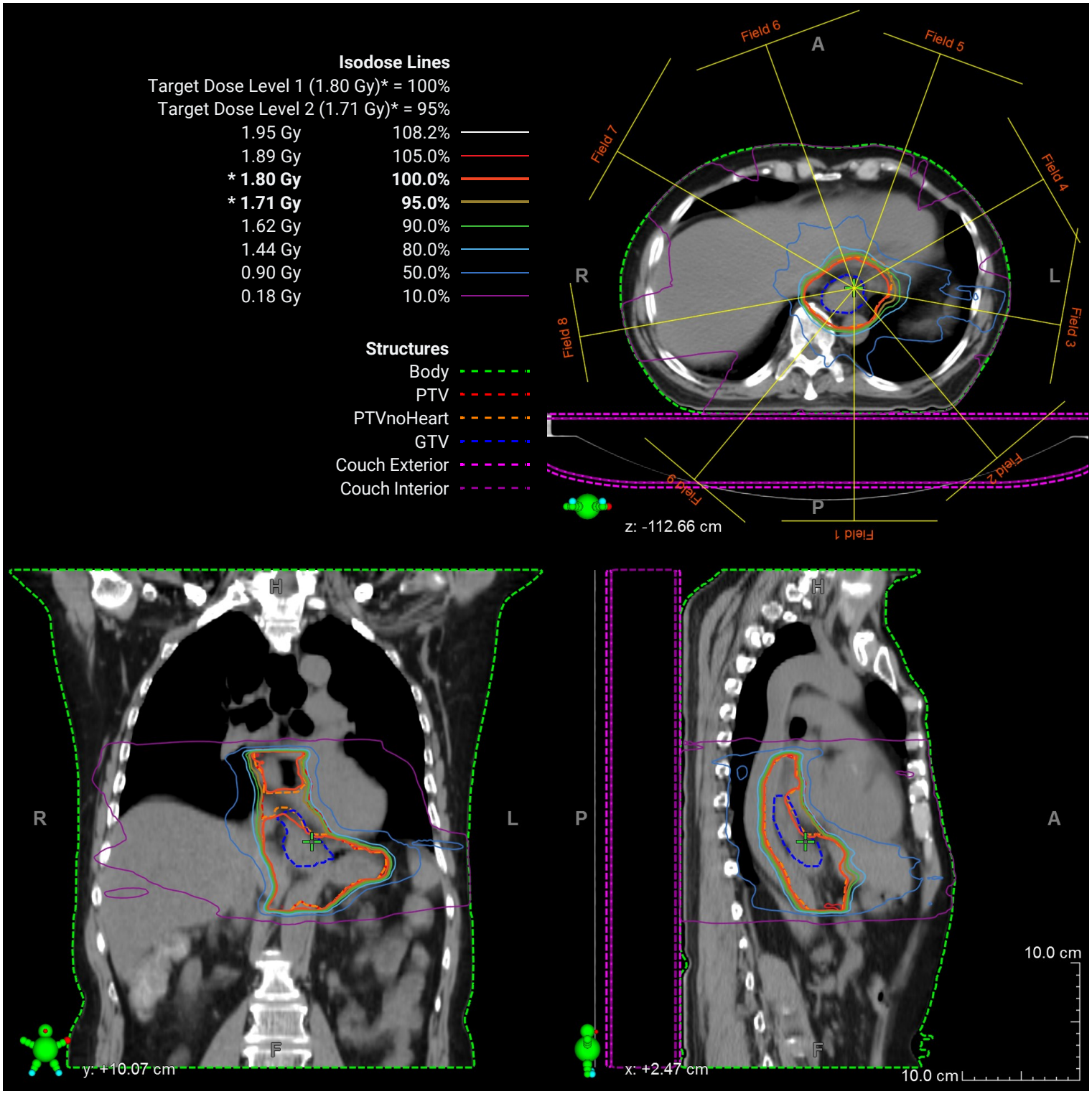
Field name		Gantry [°]	Collimator [°]	MU
Field 1	IMRT	180.0°	10.0°	257.1 MU
Field 2	IMRT	140.0°	10.0°	241.0 MU
Field 3	IMRT	100.0°	10.0°	162.6 MU
Field 4	IMRT	60.0°	10.0°	147.7 MU
Field 5	IMRT	20.0°	10.0°	244.7 MU
Field 6	IMRT	340.0°	10.0°	260.7 MU
Field 7	IMRT	300.0°	10.0°	204.4 MU
Field 8	IMRT	260.0°	10.0°	163.2 MU
Field 9	IMRT	220.0°	10.0°	166.4 MU

Total	1847.9 MU

Isocenter 1

Isocenter 1

X: 2.47 cm Y: 10.07 cm Z: -112.66 cm



Summary

Dose

Grid size:	X: 184 Y: 98 Z: 141
Grid resolution:	X: 0.25 cm Y: 0.25 cm Z: 0.30 cm
Dose reporting condition:	Dose to medium, transport in medium

Primary image

ID:	AVG
Size:	X: 512 Y: 512 Z: 141
Resolution:	X: 0.12 cm Y: 0.12 cm Z: 0.30 cm
Acquisition time:	28 May 2019 15:33:48 (UTC+0)
CT scanner:	DefaultCTScanner
Last approved by:	PhiTest01
Last approved on:	07 April 2021 09:43:52 (UTC+0)

Plan

DICOM UID:	1.2.246.352.800.4681049065817603133.11433804142542666126

Technical structures

Simulation isocenter

Position (DICOM)	X: 0.00 cm Y: 0.00 cm Z: 0.00 cm

Couch plane

Position (DICOM)	X: -30.00 cm Y: 20.73 cm Z: -131.65 cm
Couch type:	Halcyon couch

Calculation logs

Plan optimization

Algorithm version: 1.1.2.44

Using the provided DVH estimation model in automated plan generation.
Language of dose calculation log messages: EN.
Device used for GPU acceleration: Tesla P100-PCIE-16GB
Planning Algorithm Library version 2.3.0.43 62a4bb88fee885c296caf938d6677eace1bf324e
Device used for GPU acceleration: Tesla P100-PCIE-16GB
Beam data directory: C:\ProgramData\SF\Calculation\Fabric\work\Applications\CalculationQueueWorker_App20\CalculationQueueWorkerServiceManifest.Algorithms.1.1.2.44.1.0.0\AutomatedPlanning.1.1.0001\BeamData//PO
Dose calculation algorithm = FTDCGPU
MLC Tongue and Groove width set to: Distal 0.040 cm, Proximal 0.056 cm.
Inhomogeneity correction = On
Air cavity correction = Off
Automatic feathering = Off
Field-grouping z-threshold = 30.00 mm
Dose calculation resolution = 2.50 mm
Structure resolution = 2.50 mm
Target projection margin = 6.00 mm
Automatic lower dose objective control = Off
Automatic target overlap control = On
IMRT minimum fluence factor = 0.000
Estimate DVHs: model for out-of-field region of structure '{5EA3809E-F0D5-42B7-BB04-CC4DC97D5EB6}', is using default model to estimate the aforementioned portion of the structure. Current structure has 0.41% of its volume in such portion. The training set of the current model did not have enough out-of-field region cases.
Field 1: Fixed jaws on.
Field 2: Fixed jaws on.
Field 3: Fixed jaws on.
Field 4: Fixed jaws on.
Field 5: Fixed jaws on.
Field 6: Fixed jaws on.
Field 7: Fixed jaws on.
Field 8: Fixed jaws on.
Field 9: Fixed jaws on.
Patient support device 'Structure: 17' used in dose calculation, material: 'Water', density: 0.710938 g/cm3.
Patient support device 'Structure: 18' used in dose calculation, material: 'Air', density: 0.001110 g/cm3.
Highest mass density in dose calculation: 1.821 g/cm3.
Reporting dose to medium.
IMRT field normalization
Machine directory: C:\ProgramData\SF\Calculation\Fabric\work\Applications\CalculationQueueWorker_App20\CalculationQueueWorkerServiceManifest.Algorithms.1.1.2.44.1.0.0\AutomatedPlanning.1.1.0001\BeamData//AXB/dmx/
Treatment unit: RDS_DMX, energy: 6X-FFF
Calculation is using Preconfigured Beam Data version 4.0.
MLC Tongue and Groove width set to: Distal 0.040 cm, Proximal 0.056 cm.
The automated planning task took 69.877 seconds.

Dose calculation

Algorithm version: 1.1.2.44

Messages
Structure with type "PatientSupportDevice" and name "Couch Exterior" is used in dose calculation. The density of the structure is 0.711 g/cm3 and the material is "Water".
Structure with type "PatientSupportDevice" and name "Couch Interior" is used in dose calculation. The density of the structure is 0.001 g/cm3 and the material is "Air".
Language of dose calculation log messages: EN.
AcurosCalculationOptions.AutomaticHighDensityMaterial__ = Bone
AcurosCalculationOptions.CalculationGridSizeInCM = 0.250
AcurosCalculationOptions.DoseReportingMode = Dose to medium
AcurosCalculationOptions.FieldNormalizationType = No field normalization
AcurosCalculationOptions.HeterogeneityCorrection = ON
AcurosCalculationOptions.MaximumAutomaticHighDensityVolumeInCM3__ = 1.000
AcurosCalculationOptions.PlanDoseCalculation = ON
AcurosCalculationOptions.UseGPU = Yes
Machine directory: C:\ProgramData\SF\Calculation\Fabric\work\Applications\CalculationQueueWorker_App20\CalculationQueueWorkerServiceManifest.Algorithms.1.1.2.44.1.0.0\DoseCalculationTask.1.1.0001\AcurosBeamData\/dmx/
Treatment unit: RDS_DMX, energy: 6X-FFF
Calculation is using Preconfigured Beam Data version 4.0.
Patient support device 'Couch Exterior' used in dose calculation, material: 'Water', density: 0.710938 g/cm3.
Patient support device 'Couch Interior' used in dose calculation, material: 'Air', density: 0.001110 g/cm3.
The following MLC dosimetric parameters read from MLC add-on beam data are used in dose calculation.
Distal MLC TnG step width = 0.040 cm.
Proximal MLC TnG step width = 0.056 cm.
MLC dosimetric leaf gap = 0.010 cm.
MLC leaf transmission factor = 0.005 .
MLC Tongue and Groove width set to: Distal 0.040 cm, Proximal 0.056 cm.
Fluence Pixel Size 1.250x1.250 mm2.
Effective interleaf gap = 0.00079 cm.
Modulation factor: 1.8953.
Modulation factor: 1.9682.
Modulation factor: 1.6656.
Modulation factor: 2.2513.
Modulation factor: 1.6590.
Modulation factor: 1.8598.
Modulation factor: 2.0439.
Modulation factor: 2.4912.
Modulation factor: 1.8943.
Highest mass density in dose calculation: 1.821 g/cm3.
Reporting dose to medium.
Flattening MLC sequence recognized on a Halcyon machine. IMRT normalization is not used, but instead the field normalization follows the regular normalization rules for a static field.
No field normalization
The dose calculation task took 25.572 seconds.

Current Plan Approval Status

Clinical Approval: Not approved
Technical Approval: Not approved

Plan Approval Log

There are no approvals for the plan.