



# XiO<sup>®</sup> / Focal

## Sistemas de Planificación

Jose Manuel Reinoso Cobo  
manuel.reinoso.sspa@juntadeandalucia.es  
953 008 095 – corp.: 208095

# XiO<sup>®</sup>

4.60

- Patient File Maintenance
- Teletherapy
- Irregular Field
- Brachytherapy
- Source File Maintenance
- Data Export
- RTOG Submission
- Transfer Data to Focal PC
- Film Digitizer



# Funcionalidades



## XiO®

- Estación de planificación
- Evolución de Focus®
- v4.2.0(2004) → v4.60(2011)
- SO linux/HP UX

- Haces
  - Fotones
  - Electrones
  - Protones
- Plantillas
- IMRT
- RB
  - TCP, NTCP

### Se ha ido añadiendo

- Contorneo 3D y brush
- Evaluación multiplan
- DICOM Bundle
- MC electrones
- Hoja de haces
- Impresión múltiples DRR
- Nuevas Unidades de tratamiento

## Focal (Pro, Sim, 4D, Monaco)

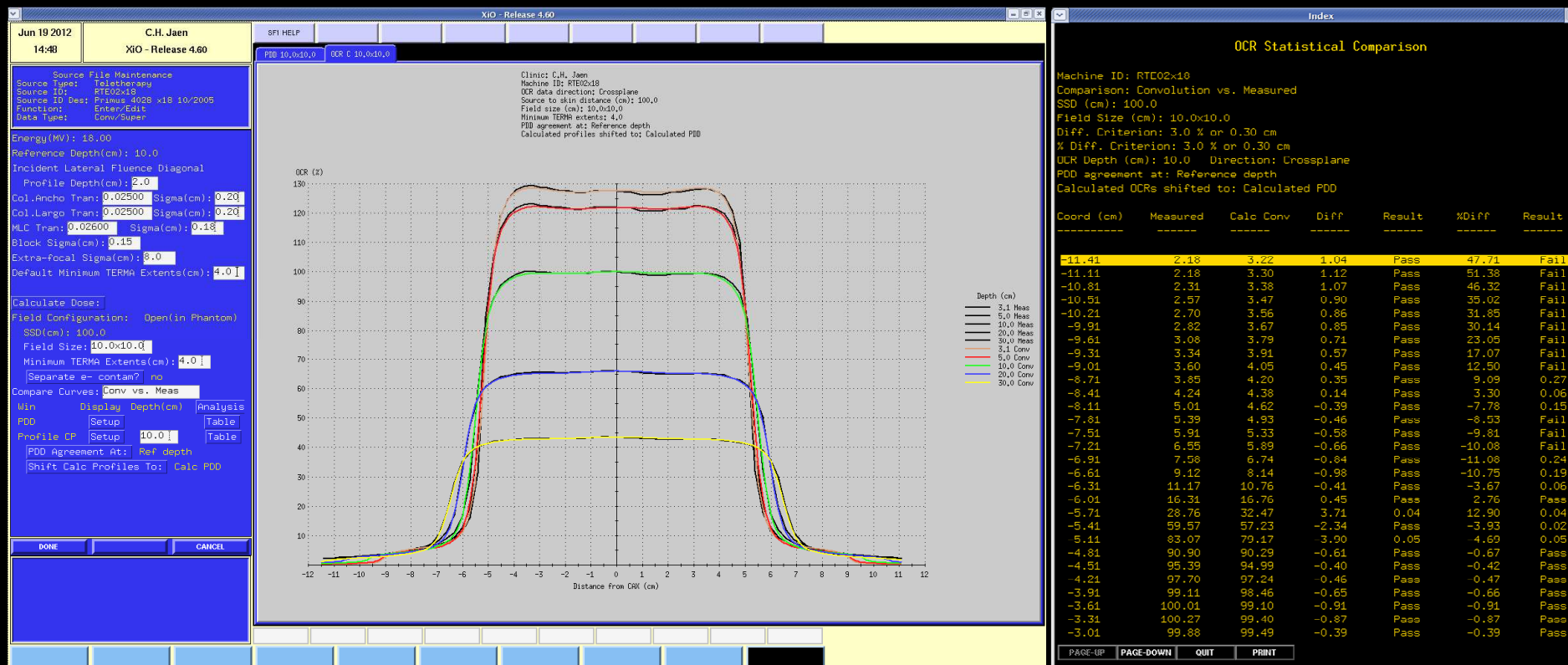
- Simulación
- Contorneo
- Evaluación
- v4.2.0(2004) → v4.60(2011)
- SO Windows

- Láseres: isocentro
- Fusión de imágenes
- Volúmenes
  - Suma, resta
  - Expansión anisótropa, contracción isótropa
  - Recorte piel
- Evaluación 3 planes
- Suma y resta de planes

### Se ha ido añadiendo

- Contorneo 3D y brush
- Monaco
- Focal 4D
- Autosegmentación

# Modelado de las Unidades

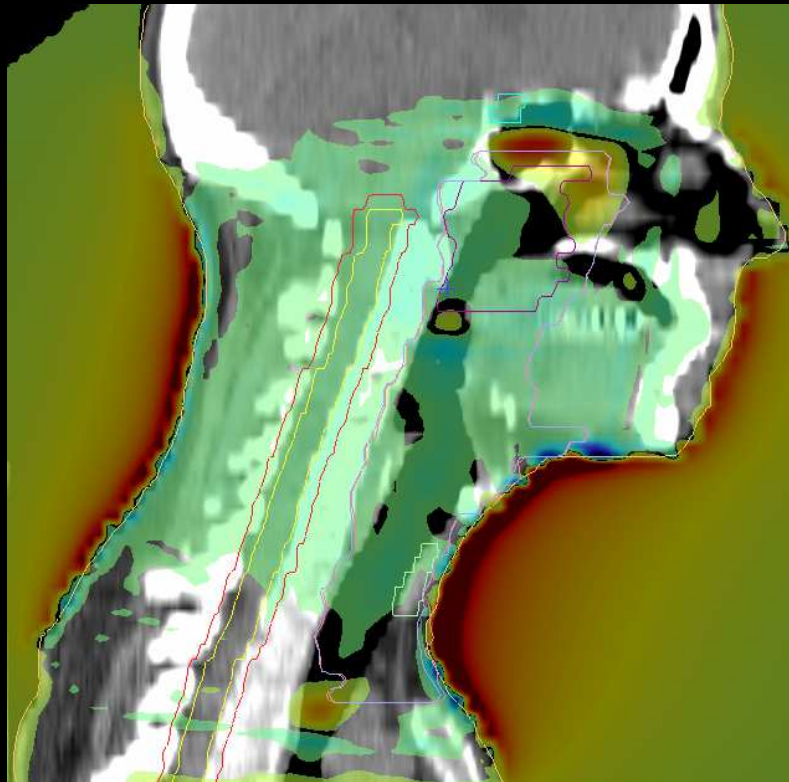


# Algoritmos de cálculo I. Fotones

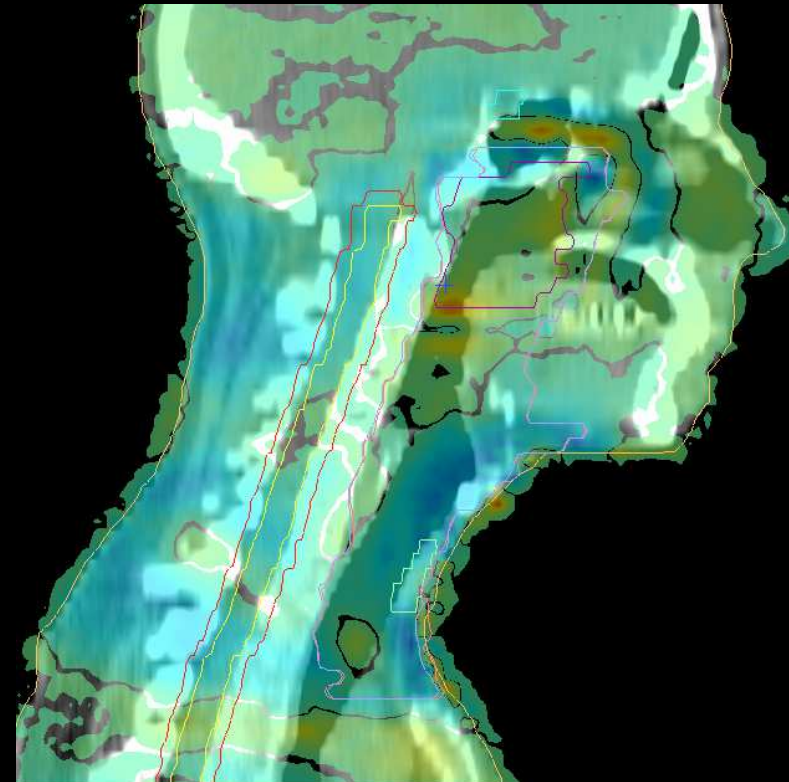


- Clarkson
  - FFT convolution
  - Fastsuperposition
  - Multigrid superposition
- } un solo modelado

FFT-Multigrid: Máxima diferencia 13.82Gy



Fastsuperposition-Multigrid: Máxima diferencia 0.91Gy

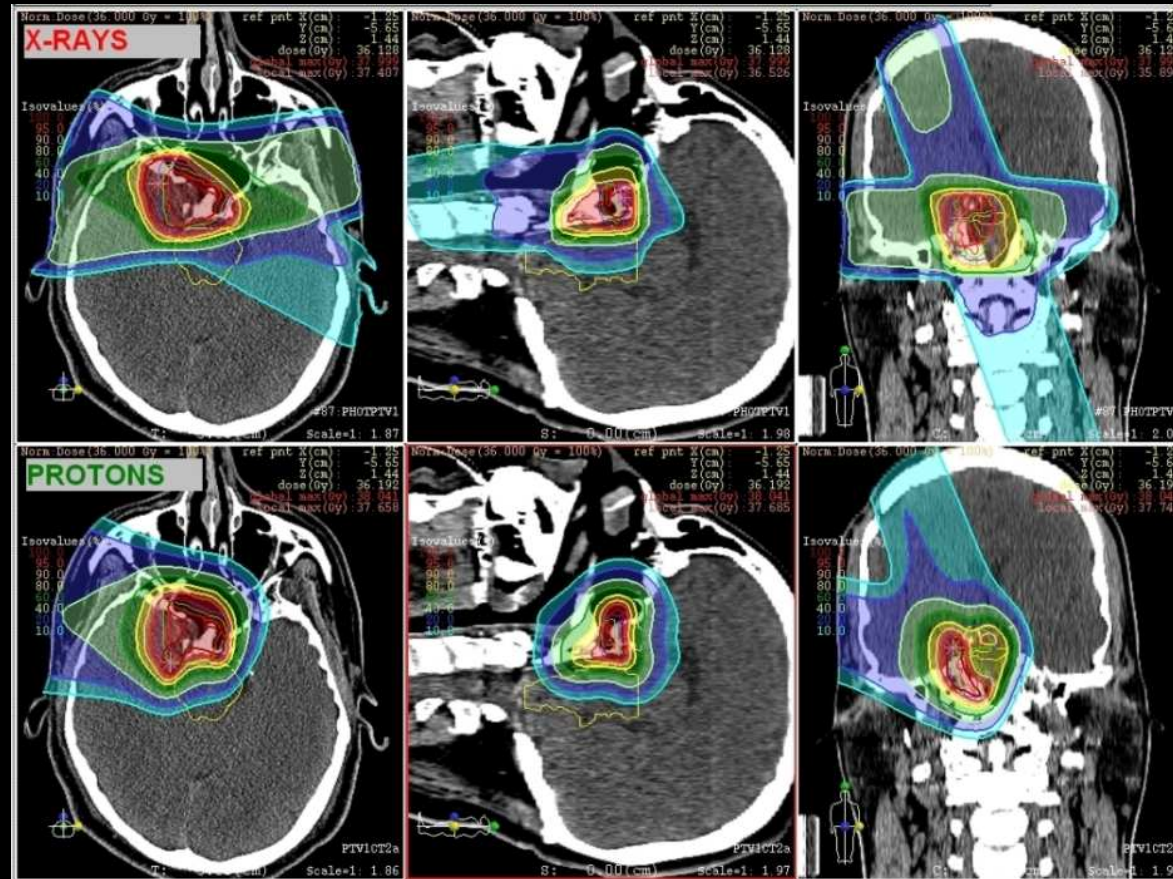


# Algoritmos de cálculo II

## Electrones

- Pencil beam
- eMC

## Protones



# Herramientas de simulación Virtual

- Focal 4D
  - Import and export of RCCT and nonRCCT images
  - Layouts supporting 4D image sets
  - Creation of MIP, MinIP, and Average images
  - Definable grid to determine tumor motion
  - Cine view with contouring
  - Contouring on sagittal and coronal images
  - Automatic ITV creation
  - Boolean creation
- Láseres
- Haces



# Herramientas evaluación



**FocalSim - [0070, James Bond ORL, CT1, 1:2]**

File Activities View DVH Tools Reports Help

Norm: Absolute 7000.0 cGy = 100.00 % P S: Dose

Working Plan: 1 Global Max Dose: 7449.7 cGy

**1c Global Max Dose: 7446.0 cGy**

CONTORNO  
OR G1aD  
OR D1aD  
OR H1aD  
OR N1aD  
OR cr1aD

All Off

All Beams On All Beams Off

Dose (cGy): > 4500.0

OR.modula

Thickness % 3.00

Reference Dose

**1 Global Max Dose: 7449.7 cGy**

**1c - 1 Global Max Dose: 1388.2 cGy**

Dose grids for 1c and 1 to not match.

Difference (%)

Volume (%)

Dose (cGy)

Isolines

Thickness % 5.00

Cutoff % 2.00

ColorWash

Ready

Plan Review Activity

01020120618.120540.007 NUM

The interface displays a multi-panel view of a radiation therapy plan. The top-left panel shows a cross-sectional CT scan of a head with a red contour and a data box: P: -967 HU / 0.044 ED, S: 6926.6 cGy. The top-right panel is a DVH plot showing Volume (%) vs. Dose (cGy) with a red vertical line at 4500.0 cGy. The bottom-left panel shows another cross-section with a blue contour and data box: P: -967 HU / 0.044 ED, S: 6219.8 cGy. The bottom-right panel shows a color-coded dose distribution map with a red text warning: 'Dose grids for 1c and 1 to not match.' and a data box: P: -967 HU / 0.044 ED, S: 706.8 cGy. The interface includes a menu bar, toolbars, and a status bar at the bottom.



# Fusión de imágenes



**FocalPro**  
File Activities View Tools Help

Cuello:CT2 Green wash

Paciente  
CTVT  
Medula  
medula+0.5  
All Off

**View Transformation Matrix**

1.000	0.000	0.000	-3.622
0.000	0.998	-0.070	-18.511
0.000	0.070	0.998	65.205
0.000	0.000	0.000	1.000

Rotation:  
X: 4.018 degrees  
Y: 0.000 degrees  
Z: -0.000 degrees

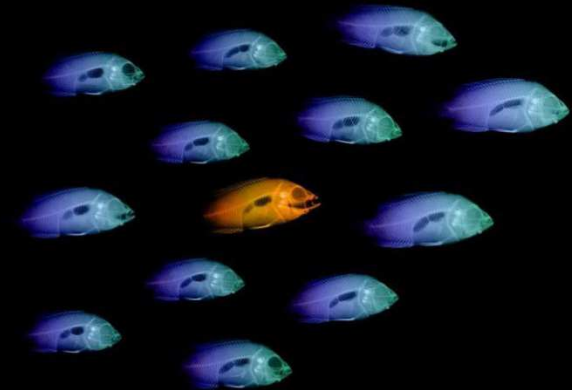
Translation:  
X: -0.3622 cm. (LEFT/RIGHT)  
Y: -1.8511 cm. (SUP/INF)  
Z: 6.5205 cm. (ANT/POST)

Reset Registration  
OK Cancel

Ready  
Image Fusion Activity Autosave ON Guide Radius: 0.20cm (-> to increase <- to decrease) NUM

# Otras cuestiones

- No hay base de datos de pacientes
- Si hay plantillas
- Informes
  - Si selección información
  - No formato
  - Impresión en pdf
  - No exporta a ASCII ni Excel
- CMS.Direct
  - Storage
  - Access



# DICOM

## SOP Classes

### Transfer

CT Image Storage  
 MR Image Storage  
 PET Image Storage  
 SECONDARY CAPTURE Storage  
 STRUCTURE SET Storage  
 RT ION PLAN Storage (4.41 release only)  
 RT PLAN Storage  
 RT DOSE Storage

### Print Management

Basic Grayscale Print Management

## User of Service (SCU)

Yes  
 No  
 No  
 Yes  
 Yes  
 Yes  
 Yes  
 Yes  
 Yes

Yes

## Provider of Service (SCP)

Yes  
 Yes  
 Yes  
 No  
 Yes  
 Yes  
 Yes  
 No

No

## UID Value

1.2.840.10008.1.1  
 1.2.840.10008.5.1.4.1.1.2  
 1.2.840.10008.5.1.4.1.1.4  
 1.2.840.10008.5.1.4.1.1.128  
 1.2.840.10008.5.1.4.1.1.7  
 1.2.840.10008.5.1.4.1.1.481.3  
 1.2.840.10008.5.1.4.1.1.481.5  
 1.2.840.10008.5.1.4.1.1.481.8  
 1.2.840.10008.5.1.4.1.1.481.2  
 1.2.840.10008.5.1.1.9

## UID Name

Verification  
 CT Image Storage  
 MR Image Storage  
 PET Image Storage  
 Secondary Capture Image Storage  
 RT Structure Set Storage  
 RT Plan Storage  
 RT Ion Plan Storage  
 RT Dose Storage  
 Basic Grayscale Print Management Meta SOP Class

## Category

Transfer  
 Transfer  
 Transfer  
 Transfer  
 Transfer  
 Transfer  
 Transfer  
 Transfer  
 Transfer  
 Transfer  
 Print Management

## Media Storage Application Profile

### Compact Disk- Recordable

General Purpose CD-R

### Magneto-Optical Disk

CT/MR MOD

## Write Files (FSC or FSU)

No  
 No

## Read Files (FSR)

Yes  
 Yes



# Mantenimiento



## Assurance 1.0 : software support

- Unlimited telephone and online support
- Applicable right-to-use licenses
- All software updates (excluding marketable features)

## Assurance 2.0 : software and hardware support

- Unlimited telephone and online support
- Repair and replacement of all covered hardware
- Applicable right-to-use licenses
- All software updates (excluding marketable features)

## Assurance 2.1 : software and hardware support with training

- Unlimited telephone and online support
- Repair and replacement of all covered hardware
- Applicable right-to-use licenses
- All software updates (excluding marketable features)
- Tuition, travel and accommodations for one person to any CMS in-house training course

## Assurance 3.0 : Anti-obsolescence (one replacement)

- Unlimited telephone and online support
- Repair and replacement of all covered hardware
- Applicable right-to-use licenses
- All software updates (excluding marketable features)
- Tuition, travel and accommodations for one person to any CMS in-house training course
- Replacement of covered CPUs one time during the contract term. Replacement takes place during the final quarter of the contract term. This agreement is a three-year obligation for existing customers and a two-year obligation for new customers.

## Assurance 4.0 : Anti-obsolescence (two replacements)

- Unlimited telephone and online support
- Repair and replacement of all covered hardware
- Applicable right-to-use licenses
- All software updates (excluding marketable features)
- Tuition, travel and accommodations for one person to any CMS in-house training course
- Replacement of covered CPUs two times during the contract term. Replacement takes place immediately, and again during the final quarter of the contract term. This agreement is a three-year obligation.

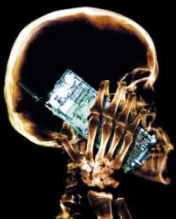
# A destacar

## Me gusta

- Estabilidad
- Planes temporales
- Rapidez de cálculo
- Cálculo en background
- Recorte de la piel
- Opciones de pesado de los haces

## No me gusta o no está

- Base de datos de pacientes
- Volúmenes 2,5D
  - No admite estructuras tipo donut
  - ...
- RB poco desarrollada
- Definición bloques
  - Sólo expansión isotrópica
- Modelado muy desfasado
- Ventanas emergentes
- Desarrollo software



# Casos prácticos



# Próstata

## Fase 1: 50Gy

- AP 1700cGy 0°
- PA 1100cGy 180°
- LD 1150cGy 270°
- LI 1150cGy 90°

## Fase 2: +26Gy

- OPD 325cGy 245°
- LD 650cGy 270°
- OAD 325cGy 320°
- OAI 325cGy 40°
- LI 650cGy 90°
- OPI 325cGy 115°

# Próstata

## Tolerancias

### Recto

- $V_{60\text{Gy}} < 40\%$
- $V_{70\text{Gy}} < 25\%$
- $D_{\text{máx}} < 76\text{Gy}$  en cara posterior

### Vejiga

- $V_{60\text{Gy}} < 40\%$
- $V_{70\text{Gy}} < 25\%$
- $D_{\text{máx}} < 80\text{Gy}$

### Cabeza femoral

- $V_{50\text{Gy}} < 5\%$

### Bulbo peneano

- $V_{40\text{Gy}} < 50\%$



# Próstata

Punto ICRU y elección de template

The screenshot displays the XiO software interface for prostate treatment planning. The main window is titled "XiO - Release 4.60 - 007P(John Doe) Temporary Plan: 185(1)". The menu bar includes "File Edit View Contour Beam Port Dose Tools Optimize Reports Help". The status bar at the bottom shows "Jun 21 2012 02:15 PM Mouse: Pan the window".

The interface is divided into several panels:

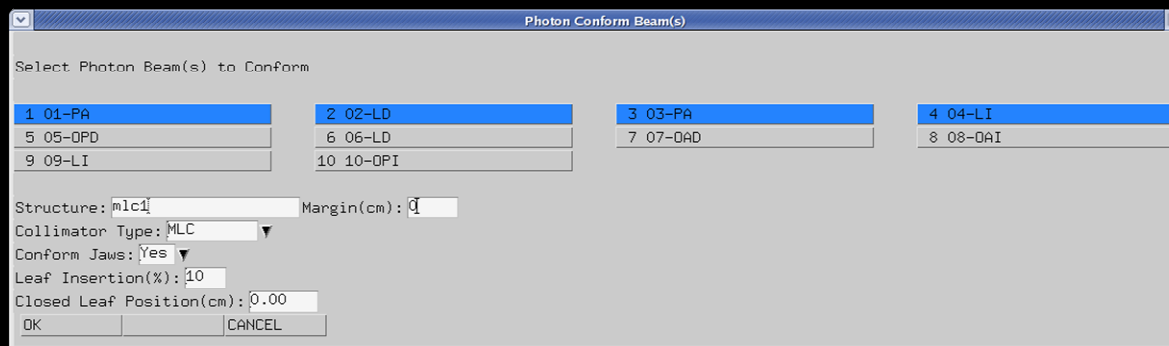
- Top Left:** Axial CT slice showing the prostate and surrounding structures. The slice is labeled "T: -4.00 (cm)" and "Scale=1.2 67".
- Middle Left:** Axial CT slice showing the prostate and surrounding structures. The slice is labeled "S: -3.35 (cm)" and "Scale=1.2 19".
- Bottom Left:** Axial CT slice showing the prostate and surrounding structures. The slice is labeled "C: -1.97 (cm)" and "Scale=1.2 16".
- Bottom Center:** 3D volume rendering of the prostate and surrounding structures.
- Bottom Right:** DVH graph titled "DVH: 007P, John Doe". The y-axis is labeled "Percent" and ranges from 0 to 100. The x-axis is labeled "Dose (Gy)" and ranges from 0 to 10000. The graph shows a single curve representing the dose distribution.

On the right side of the interface, there are controls for the active beam, including "Active Beam:" and "W L" sliders. The "W" slider is set to 400 and the "L" slider is set to 40. The "CMS SOFTWARE THE ELEKTA GROUP" logo is visible in the bottom right corner.

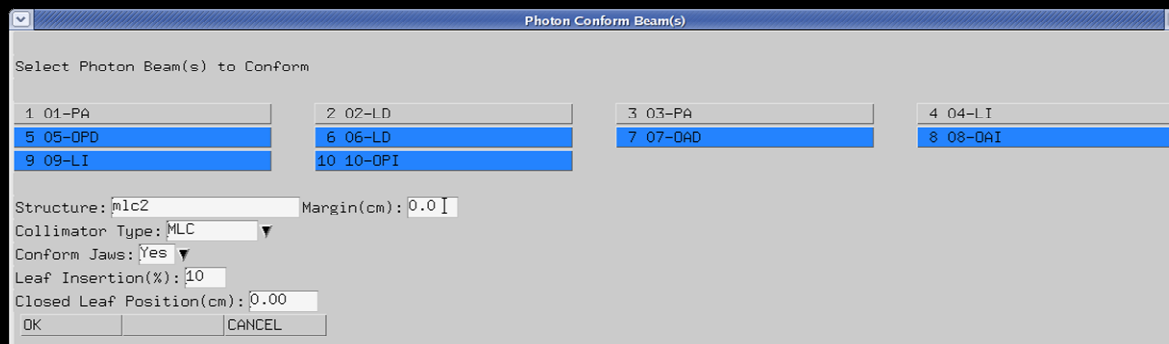
# Próstata

## Auto conformado de los haces

Fase 1



Fase 2



# Próstata

Fase 1. Ajuste pesos y UM

XIO - Release 4.60 - 007P(John Doe) Temporary Plan: 185(1)

File Edit View Contour Beam Port Dose Tools Optimize Reports Help

(Save) WVL Custom

Active Beam: 1 01-PA

Norm.Dose(5000.0 cGy = 100%) ref.pnt X(cm): -3.33  
 Y(cm): -4.00  
 Z(cm): -1.97  
 dose(cGy): 5200.8  
 global\_max(cGy): 5254.9  
 local\_max(cGy): 5219.0

Isovalues (%)  
 180.0  
 152.0  
 144.0  
 105.0  
 99.0  
 95.0  
 90.0  
 50.0

T: -3.50(cm) Tics = 1.0 cm Scale=1: 4.16

Norm.Dose(5000.0 cGy = 100%) ref.pnt X(cm): -3.33  
 Y(cm): -4.00  
 Z(cm): -1.97  
 dose(cGy): 5200.8  
 global\_max(cGy): 5254.9  
 local\_max(cGy): 5210.1

Isovalues (%)  
 180.0  
 152.0  
 144.0  
 105.0  
 99.0  
 95.0  
 90.0  
 50.0

S: 2.96(cm) Tics = 1.0 cm Scale=1: 4.15

Norm.Dose(5000.0 cGy = 100%) ref.pnt X(cm): -3.33  
 Y(cm): -4.00  
 Z(cm): -1.97  
 dose(cGy): 5200.8  
 global\_max(cGy): 5254.9  
 local\_max(cGy): 5217.4

Isovalues (%)  
 180.0  
 152.0  
 144.0  
 105.0  
 99.0  
 95.0  
 90.0  
 50.0

C: -1.85(cm) Tics = 1.0 cm Scale=1: 4.16

Beam Weight

All Doses On/Off off

Beam #	Description	Weight (cGy)	T(min)/MU	Frac	Stat
1	01-PA	1093.8	47.0	25	on
2	02-LD	1201.8	64.0	25	on
3	03-PA	1717.3	75.0	25	on
4	04-LI	1191.5	64.0	25	on
5	05-OPD	300.0	31.1	13	off
6	06-LD	600.0	65.0	13	off
7	07-OAD	300.0	27.5	13	off
8	08-OAI	300.0	27.7	13	off
9	09-LI	600.0	65.4	13	off
10	10-OPI	300.0	31.6	13	off

Update Display to Reflect Changes  
 Rescale (Prescribe) Beam Weights

OK CANCEL

W 400 L 40

DVH: 007P, John Doe

1.PTV1 Total Volume: 2.50 cc  
 1.PTV2 Inclusion: 100 %  
 1.OR vejiga Minimum Dose: 3147.0 cGy  
 1.OR recta Maximum Dose: 4004.0 cGy  
 1.OR bulbo Mean Dose: 4316.0 cGy  
 Curves Vol Dif: 20.44 %  
 Plan ID: +182  
 Plan Type: Solid

Volume %

4750 2000 4000 6000

Dose cGy

Jun 21 2012 02:25 PM Mouse: Scale the Window

Dose Valid

CMS SOFTWARE THE ELEKTA GROUP

# Próstata

Fase 2. Ajuste pesos y UM

XIO - Release 4.60 - 007P(John Doe) Temporary Plan: 185(2)

File Edit View Contour Beam Port Dose Tools Optimize Reports Help

(Save) W/L Custom

Active Beam: [dropdown]

Norm.Dose(2600.0 cGy = 100%) ref.pnt X(cm) -3.33  
Y(cm) -4.00  
Z(cm) -1.97  
dose(cGy) 2700.5  
global max(cGy) 2715.1  
local max(cGy) 2714.1

Isovalues (%)  
152.0  
144.0  
105.0  
99.0  
95.0  
90.0  
85.0

T: -4.00 (cm) Scale=1: 1.16

Norm.Dose(2600.0 cGy = 100%) ref.pnt X(cm) -3.33  
Y(cm) -4.00  
Z(cm) -1.97  
dose(cGy) 2700.5  
global max(cGy) 2715.1  
local max(cGy) 2714.1

Isovalues (%)  
152.0  
144.0  
105.0  
99.0  
95.0  
90.0  
58.0

B: -3.33 (cm) Tics = 1.0 cm  
Scale=1: 1.07

Norm.Dose(2600.0 cGy = 100%) ref.pnt X(cm) -3.33  
Y(cm) -4.00  
Z(cm) -1.97  
dose(cGy) 2700.5  
global max(cGy) 2715.1  
local max(cGy) 2709.7

Isovalues (%)  
160.0  
152.0  
144.0  
105.0  
99.0  
95.0  
90.0  
85.0

C: -1.97 (cm) Tics = 1.0 cm  
Scale=1: 1.18

Beam Weight

All Doses On/Off on

Beam #	Description	Weight (cGy)	T(min)/MU	Prac	Stat
1	01-PA	1093.8	47.0	25	off
2	02-LD	1201.8	64.0	25	off
3	03-PA	1717.3	75.0	25	off
4	04-LI	1191.5	64.0	25	off
5	05-OPD	357.3	37.0	13	on
6	06-LD	655.7	71.0	13	on
7	07-OAD	348.5	32.0	13	on
8	08-OAI	346.6	32.0	13	on
9	09-LI	651.0	71.0	13	on
10	10-OPB	350.9	37.0	13	on

Update Display to Reflect Changes  
Rescale (Prescribe) Beam Weights

OK CANCEL

DVH: 007P, John Doe

1.PTV1 Total Volume: 2.50 cc  
2.PTV2 Inclusion: 100 %  
1.OR vejiga Minimum Dose: 1410.0 cGy  
1.OR recto Maximum Dose: 2631.0 cGy  
1.OR bulbo Mean Dose: 2174.0 cGy  
Organs Vol Dif: 15.69 %  
Plan ID: +182 %

Volume %

Dose (cGy)

2470

Jun 21 2012 02:33 PM Mouse: Scale the Window

Dose Valid

CMS SOFTWARE THE ELEKTA GROUP

# Próstata

Suma de fases y resultado

XiO - Release 4.60 - 007P(John Doe) Temporary Plan: 185(2)

File Edit View Contour Beam Port Dose Tools Optimize Reports Help

(Save) W/L Custom

Active Beam: 2 OZ-LD

Norm.Dose(5000.0 cGy = 100%) ref.pnt X(cm): -3.33  
Y(cm): -4.00  
Z(cm): -1.97  
dose(cGy): 7909.6  
global\_max(cGy): 7916.8  
local\_max(cGy): 7922.8

Isovalues (%)  
160.0  
150.0  
144.0  
105.0  
99.0  
90.0  
50.0

T: -4.00 (cm) Fies = 1.0 cm  
Scale=1: 3.05

Norm.Dose(5000.0 cGy = 100%) ref.pnt X(cm): -3.33  
Y(cm): -4.00  
Z(cm): -1.97  
dose(cGy): 7909.6  
global\_max(cGy): 7916.8  
local\_max(cGy): 7915.2

Isovalues (%)  
160.0  
150.0  
144.0  
105.0  
99.0  
90.0  
50.0

S: -3.33 (cm) Fies = 1.0 cm  
Scale=1: 1.35

DVH: 007P, John Doe

Total Volume:	203.73 cc
Inclusion:	100 %
Minimum Dose:	59.0 cGy
Maximum Dose:	7902.0 cGy
Mean Dose:	3594.0 cGy
Cursor Vol Dif:	15.96 %
Plan ID:	*185
Line Type:	Solid

Volume %

Dose cGy

4750 7220

Norm.Dose(5000.0 cGy = 100%) ref.pnt X(cm): -3.33  
Y(cm): -4.00  
Z(cm): -1.97  
dose(cGy): 7916.8  
global\_max(cGy): 7916.8  
local\_max(cGy): 7914.4

Isovalues (%)  
160.0  
150.0  
144.0  
105.0  
99.0  
90.0  
50.0

C: -1.97 (cm) Scale=1: 1.18

Norm.Dose(5000.0 cGy = 100%) ref.pnt X(cm): -3.33  
Y(cm): -4.00  
Z(cm): -1.97  
dose(cGy): 7909.6  
global\_max(cGy): 7916.8  
local\_max(cGy): 7914.4

Isovalues (%)

Beam=2 JV=0 Fies = 1.0 cm  
Scale=1: 1.47

Norm.Dose(5000.0 cGy = 100%) ref.pnt X(cm): -3.33  
Y(cm): -4.00  
Z(cm): -1.97  
dose(cGy): 7909.6  
global\_max(cGy): 7916.8  
local\_max(cGy): 7916.8

Isovalues (%)

Jun 21 2012 02:39 PM Mouse: Pan the window

Dose Valid

CMS SOFTWARE THE ELEKTA GROUP

# ORL opción 1

## Fase 1: 50Gy

### Mesa a 0°

•m0g60 50um w30°

•m0g0

•m0g300 50um w30°

### Mesa a 340°

•m340g90 10um

•m340g90r

•m340g110 15um

•m340g110b 8um

•m340g135 20um

•m340g135b 10um

•m340g165 25um

•m340g165b 12um

•m340g165r

## Mesa a 20°

•m20g270 10um

•m20g270r

•m20g250 15um

•m20g250b 8um

•m20g225 20um

•m20g225b 10um

•m20g195 25um

•m20g195b 12um

•m20g195r

## Fase 2: +20Gy

•LD 2000cGy270°

•LI 2000cGy 90°

# ORL opción 1

## Tolerancias

### Médula espinal

- $D_{\max} < 45\text{Gy}$

### Médula espinal + 5mm

- $V_{45\text{Gy}} < 1\%$

### Nervio óptico

- $D_{\max} < 45\text{Gy}$

### Globo ocular

- $D_{\max} < 45\text{Gy}$

### Cristalino

- $D_{\max} < 10\text{Gy}$

### Hipófisis

- ---

### Tiroides

- ---

# ORL opción 1

Campos anteriores con cuñas

File Edit View Contour Beam Port Dose Tools Optimize Reports Help

(save) W/L Custom

Active Beam: [ ]

T: 0.00 (cm) Scale=1: 2.56

W 400 L 41

C: 4.34 (cm) Scale=1: 2.76

Scale=1: 3.51

Dose Display Is Not Current For Plan Data

DVH: 0070, James Bond ORL

volume %

Dose cGy

Jun 21 2012 03:06 PM Mouse: Rotate the MPV

Dose Off All Beams

CMS SOFTWARE THE ELEKTA GROUP



# ORL opción 1

Mesa a 340°

XiO - Release 4.60 - 0070 (James Bond ORL) Temporary Plan: 192(1)

File Edit View Contour Beam Port Dose Tools Optimize Reports Help

(Save) W/L Custom

Active Beam: 4 m340g90

T: 0.00 (cm) Scale=1: 2.56

Scale=1: 1.05

Beam	Description	Status
1	m0g60	Off
2	m0g0	Off
3	m0g300	Off
5	m340g90r	Off
6	m340g110	On
7	m340g110b	Off
8	m340g135	On
9	m340g135b	Off
10	m340g165	On
11	m340g165r	Off
12	g340m165b	Off
13	m20g270	Off
14	m20g270r	Off
15	m20g250	Off
16	m20g250b	Off
17	m20g225	Off
18	m20g225b	Off
19	m20g195	Off
20	m20g195r	Off
21	m20g195b	Off
22	m0g90f2	Off
23	m0g270f2	Off

W 400  
L 41

C: 7.34 (cm) Scale=1: 2.76

Scale=1: 0.51

DVH: 0070, James Bond ORL

Jun 22 2012 02:30 PM Mouse: Pan the window

Dose Off All Beams

CMS SOFTWARE THE ELEKTA GROUP

# ORL opción 1

Mesa a 340° complementarios

XiO - Release 4.60 - 0070(James Bond ORL) Temporary Plan: 190(1)

File Edit View Contour Beam Port Dose Tools Optimize Reports Help

(Save) W/L Custom

Active Beam: 7 m340g110b

Scale=1: 2.56

Scale=1: 1.05

C: 6.84 (cm) Scale=1: 2.76

Scale=1: 3.51

DVH: 0070, James Bond ORL

Volume %

Dose cGy

Show/Hide Specific Inactive Beams

Current Beam Number: 7

Beam	Description	Status
1	m0g60	Off
2	m0g0	Off
3	m0g300	Off
4	m340g90	Off
5	m340g90r	Off
6	m340g110	Off
8	m340g135	Off
9	m340g135b	On
10	m340g165	Off
11	m340g165r	Off
12	g340m165b	On
13	m20g270	Off
14	m20g270r	Off
15	m20g250	Off
16	m20g250b	Off
17	m20g225	Off
18	m20g225b	Off
19	m20g195	Off
20	m20g195r	Off
21	m20g195b	Off
22	m0g90f2	Off
23	m0g270f2	Off

OK CANCEL

W 400

L 41

Jun 21 2012 03:10 PM Mouse: Pan the window

Dose Off All Beams

CMS SOFTWARE THE ELEKTA GROUP

# ORL opción 1

Mesa a 20°

XiO - Release 4.60 - 0070(James Bond ORL) Temporary Plan: 190(1)

File Edit View Contour Beam Port Dose Tools Optimize Reports Help

(Save) W/L Custom

Active Beam: 15 m20g250

Beam	Description	Status
1	m0g60	Off
2	m0g0	Off
3	m0g300	Off
4	m340g90	Off
5	m340g90r	Off
6	m340g110	Off
7	m340g110b	Off
8	m340g135	Off
9	m340g135b	Off
10	m340g165	Off
11	m340g165r	Off
12	g340m165b	Off
13	m20g270	On
14	m20g270r	Off
15	m20g250	On
16	m20g250b	Off
17	m20g225	On
18	m20g225b	Off
19	m20g195	On
20	m20g195r	Off
21	m20g195b	Off
22	m0g90f2	Off
23	m0g270f2	Off

DVH: 0070, James Bond ORL

Volume %

Dose cGy

Jun 21 2012 03:16 PM Mouse: Scale the Window

Dose Off All Beams

CMS SOFTWARE THE ELEKTA GROUP

# ORL opción 1

Mesa a 20° complementarios

XiO - Release 4.60 - 0070(James Bond ORL) Temporary Plan: 190(1)

File Edit View Contour Beam Port Dose Tools Optimize Reports Help

(Save) W/L Custom

Active Beam: 18 m20g225b

Show/Hide Specific Inactive Beams

Current Beam Number: 18

Beam	Description	Status
1	m0g60	Off
2	m0g0	Off
3	m0g300	Off
4	m340g90	Off
5	m340g90r	Off
6	m340g110	Off
7	m340g110b	Off
8	m340g135	Off
9	m340g135b	Off
10	m340g165	Off
11	m340g165r	Off
12	g340m165b	Off
13	m20g270	Off
14	m20g270r	Off
15	m20g250	Off
16	m20g250b	On
17	m20g225	Off
19	m20g195	Off
20	m20g195r	Off
21	m20g195b	On
22	m0g90f2	Off
23	m0g270f2	Off

OK CANCEL

T: 0.00 (cm) Scale=1: 2.56

W 400 L 41

C: 6.84 (cm) Scale=1: 2.76

DVH: 0070, James Bond ORL

Volume %

Dose cGy

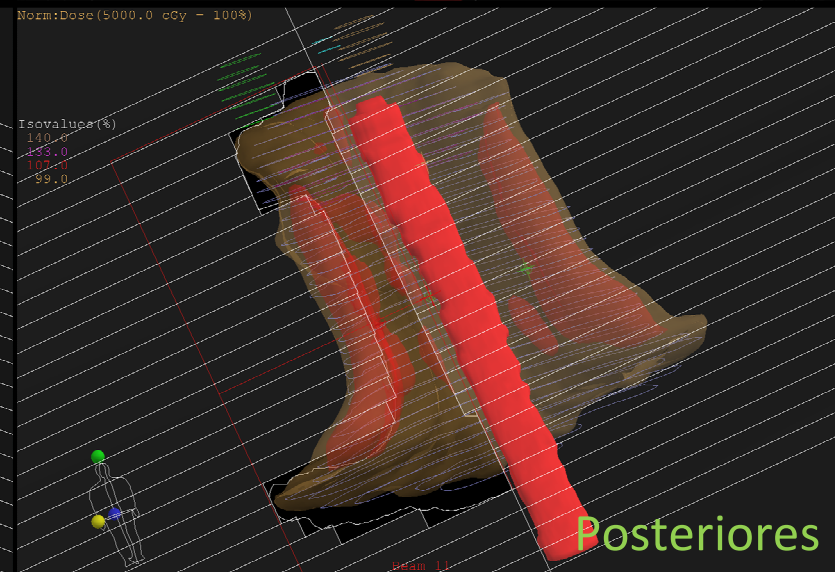
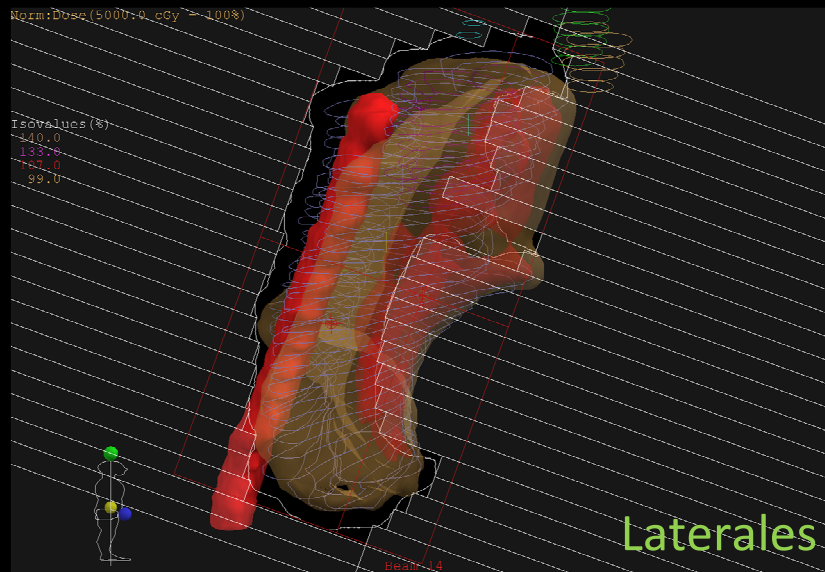
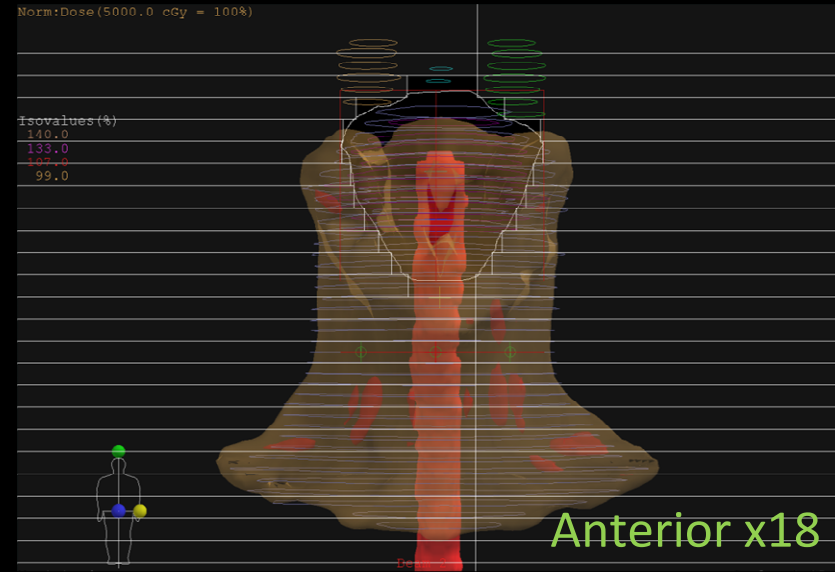
Jun 21 2012 03:18 PM Mouse: Scale the Window

Dose Off All Beams

CMS SOFTWARE THE ELEKTA GROUP

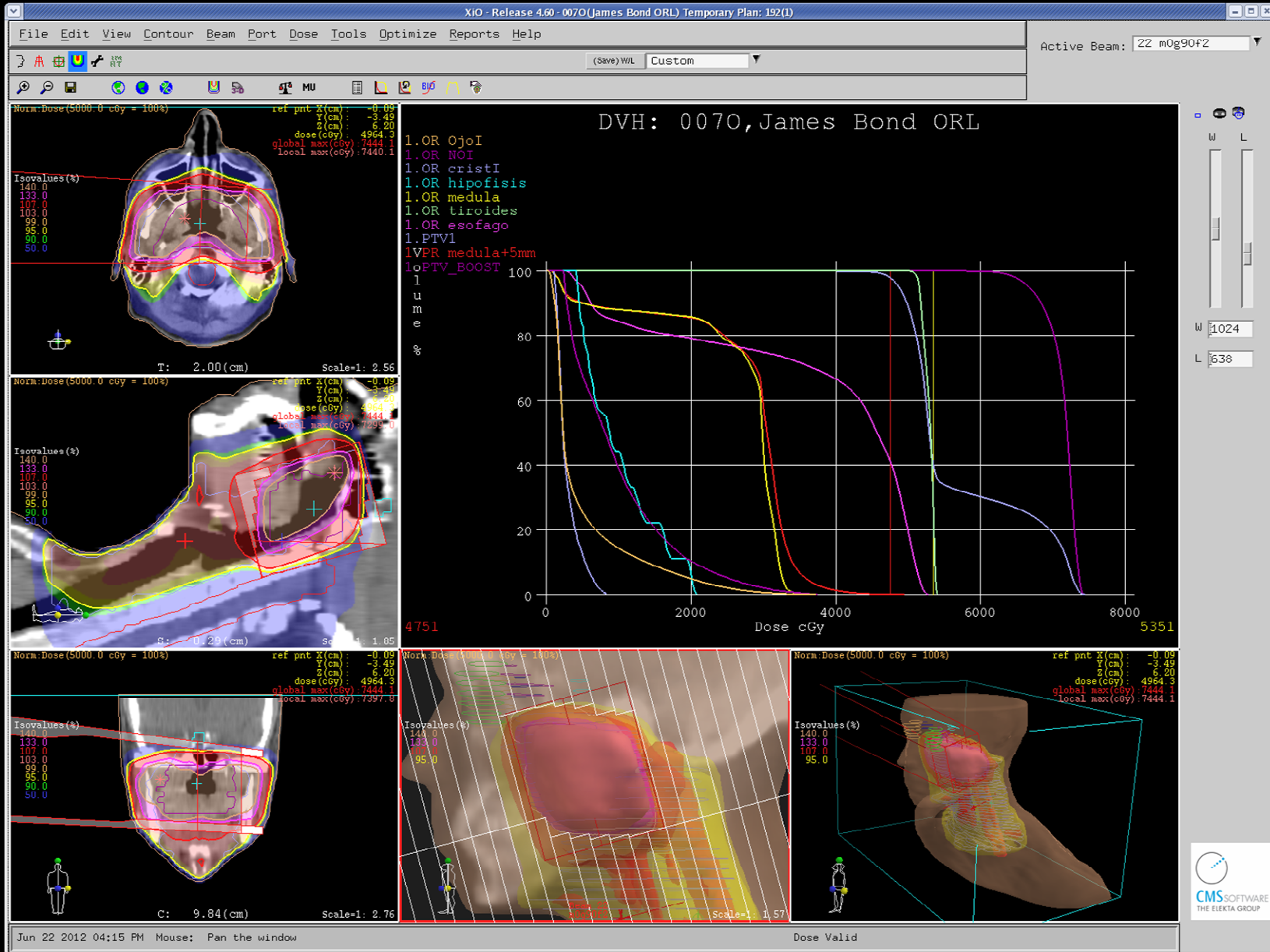
# ORL opción 1

Campos reducidos



# ORL opción 1

Suma con fase 2



# ORL opción 2

## Fase 1: 50Gy

### Mesa a 0°

- g90r
- g60 75um
- g60r
- g300 75um
- g300r
- g270r

### Mesa a 270°

- m270g75 55um w45°
- m270g160d 50um
- m270g160dr
- m270g160i 50um
- m270g160ir

## Fase 2: +20Gy

- LD 2000cGy 270°
- LI 2000cGy 90°

# ORL opción 2

Mesa a 270° campos posteriores

XiO - Release 4.60 - 0070(James Bond ORL) Temporary Plan: 185(2)

File Edit View Contour Beam Port Dose Tools Optimize Reports Help

(Save) W/L T Blando

Active Beam: [dropdown]

Dose Display Is Not Current For Plan Data

Show/Hide Specific Inactive Beams

Beam	Description	Status
1	g90r	Off
2	g60	Off
3	g60r	Off
4	g300	Off
5	g300r	Off
6	g270r	Off
7	m270g75	Off
8	m270g160d	On
9	m270g160r	Off
10	m270g160i	On
11	m270g160ir	Off
21	F2g270	Off
22	F2g90r	Off

W 400 L 40

Scale=1: 2.58

Scale=1: 2.97

Scale=1: 1.92

Scale=1: 3.39

DVH: 0070, James Bond ORL

Volume %

Dose

Jun 21 2012 02:43 PM Mouse: Pan the window

Dose Off All Beams

CMS SOFTWARE THE ELEKTA GROUP



# ORL opción 2

Mesa a 270° campo coronal

XiO - Release 4.60 - 0070(James Bond ORL) Temporary Plan: 185(2)

File Edit View Contour Beam Port Dose Tools Optimize Reports Help

(Save) W/L Custom

Active Beam: 7 m270g75

Wedge ID: VW (45 deg)

T: -2.50 (cm) Scale=1: 2.58

Wedge ID: VW (45 deg)

Beam 7  
m270g75

Scale=1: 1.92

Wedge ID: VW (45 deg)

S: -0.29 (cm) Scale=1: 2.97

Wedge ID: VW (45 deg)

Scale=1: 3.39

Wedge ID: VW (45 deg)

C: 6.34 (cm) Scale=1: 3.39

DVH: 0070, James Bond ORL

Show/Hide Specific Inactive Beams

Current Beam Number: 7

Beam	Description	Status
1	g90r	Off
2	g60	Off
3	g60r	Off
4	g300	Off
5	g300r	Off
6	g270r	Off
8	m270g160d	Off
9	m270g160r	Off
10	m270g160i	Off
11	m270g160ir	Off
21	F2g270	Off
22	F2g90r	Off

OK CANCEL

W 1333 L 814

Jun 21 2012 02:47 PM Mouse: Pan the window

Dose Off All Beams

CMS SOFTWARE THE ELEKTA GROUP

# ORL opción 2

Campos anteriores

XiO - Release 4.60 - 0070(James Bond ORL) Temporary Plan: 185(2)

File Edit View Contour Beam Port Dose Tools Optimize Reports Help

(Save) W/L T Blando

Active Beam: [ ]

Dose Display Is Not Current For Plan Data

Show/Hide Specific Inactive Beams

Beam	Description	Status
1	g90r	Off
2	g60	On
3	g60r	Off
4	g300	On
5	g300r	Off
6	g270r	Off
7	m270g75	Off
8	m270g160d	Off
9	m270g160r	Off
10	m270g160i	Off
11	m270g160ir	Off
21	F2g270	Off
22	F2g90r	Off

W 400 L 40

Scale=1: 2.58

Scale=1: 2.97

Scale=1: 1.92

DVH: 0070, James Bond ORL

Volume %

Dose

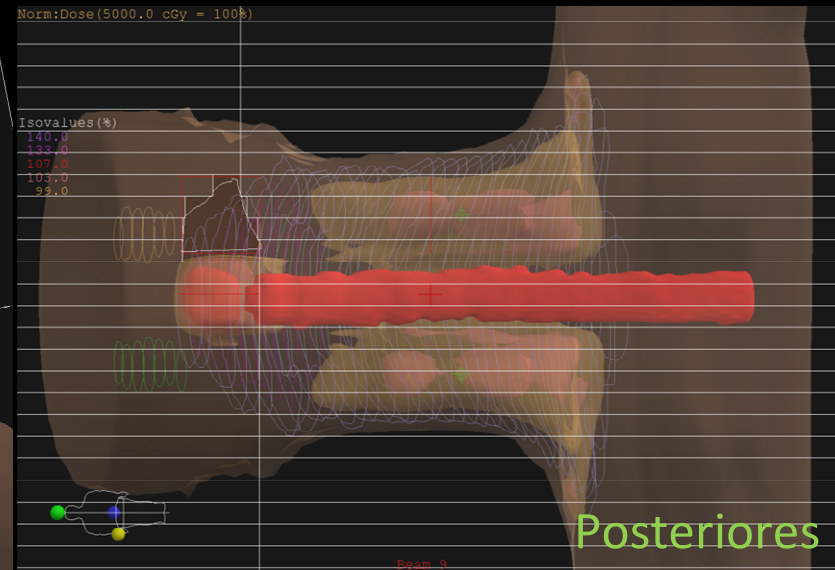
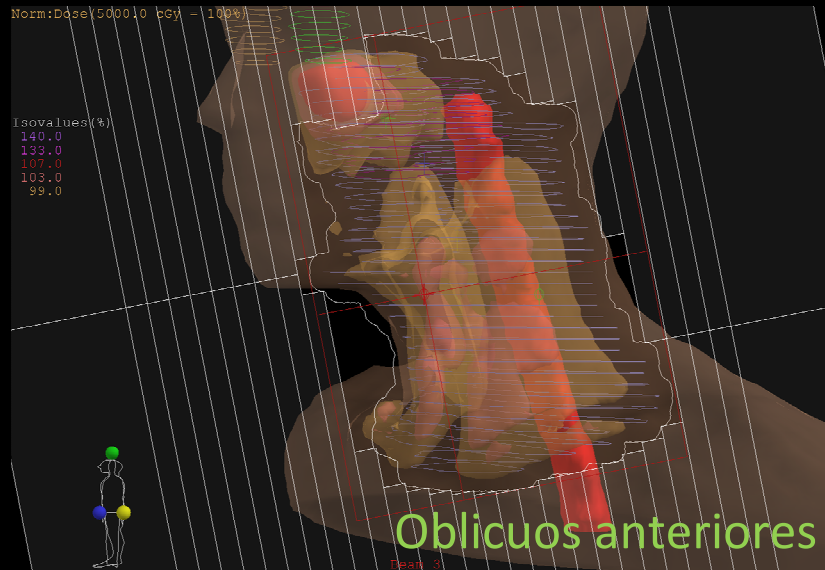
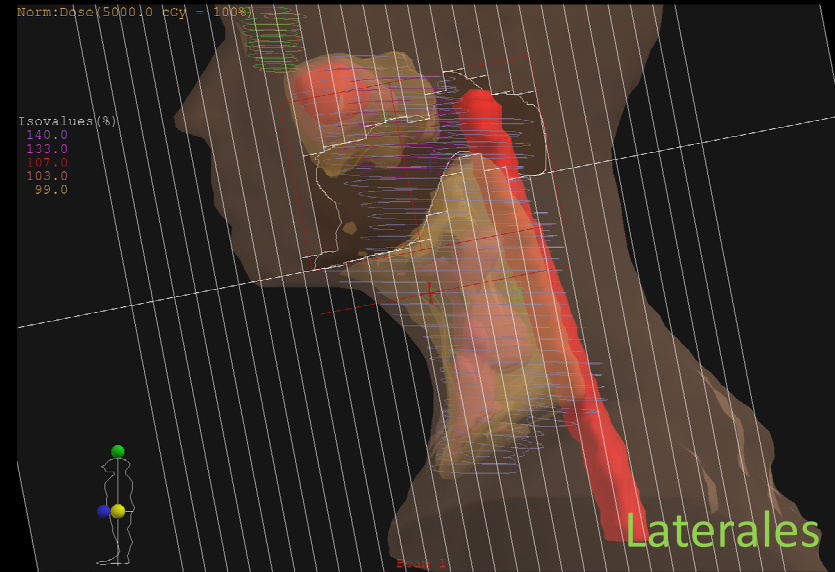
Jun 21 2012 02:44 PM Mouse: Rotate the MPV

Dose Off All Beams

CMS SOFTWARE THE ELEKTA GROUP

# ORL opción 2

## Campos reducidos



# ORL opción 2

Suma con fase 2

XIO - Release 4.60 - 0070(James Bond ORL) Temporary Plan: 185(2)

File Edit View Contour Beam Port Dose Tools Optimize Reports Help

(Save) W/L Custom

Active Beam: 4 g300

Norma.Dose(5000.0 cGy = 100%)

ref.pnt X(cm): -0.09  
Y(cm): -3.49  
Z(cm): 6.20  
dose(cGy): 5044.7  
global max(cGy): 7377.5  
local max(cGy): 7204.7

Isovalues(%)  
140.0  
133.0  
107.0  
103.0  
99.0  
95.0  
90.0  
50.0

T: -0.50 (cm) Scale=1: 1.60

DVH: 0070, James Bond ORL

1.PTV BOOST	Total Volume:	19.98 cc
1.PTVI	Inclusion:	*99 %
1.PR medula+5mm	Minimum Dose:	74.0 cGy
1.OR medula	Maximum Dose:	4701.0 cGy
1.OR NOB	Mean Dose:	3139.0 cGy
1.OR OjoD	Cursor Vol Dif:	0.00 %
1.OR hipofisis	Plan ID:	*185
	Line Type:	Solid

Volume %

4750 6700

Norma.Dose(5000.0 cGy = 100%)

ref.pnt X(cm): -0.09  
Y(cm): -3.49  
Z(cm): 6.20  
dose(cGy): 5044.7  
global max(cGy): 7377.5  
local max(cGy): 7204.7

Isovalues(%)  
140.0  
133.0  
107.0  
103.0  
99.0  
95.0  
90.0  
50.0

0.29 (cm) Scale=1: 1.01

Norma.Dose(5000.0 cGy = 100%)

ref.pnt X(cm): -0.09  
Y(cm): -3.49  
Z(cm): 6.20  
dose(cGy): 5044.7  
global max(cGy): 7377.5  
local max(cGy): 7204.7

Isovalues(%)  
140.0  
133.0  
107.0  
103.0  
99.0  
95.0  
90.0  
50.0

C: 6.34 (cm) Scale=1: 3.39

Norma.Dose(5000.0 cGy = 100%)

ref.pnt X(cm): -0.09  
Y(cm): -3.49  
Z(cm): 6.20  
dose(cGy): 5044.7  
global max(cGy): 7377.5  
local max(cGy): 7204.7

Isovalues(%)  
140.0  
133.0  
107.0  
103.0  
99.0  
95.0

Scale=1: 3.84

Jun 21 2012 02:58 PM Mouse: Pan the window

Dose Valid

CMS SOFTWARE THE ELEKTA GROUP

A glowing blue skeleton is shown from the chest up, holding a vintage-style microphone in its right hand. The skeleton is positioned on the left side of the frame, facing right. The background is dark with a bright blue spotlight effect shining down from the top right corner. The text "Gracias por su atención" is written in white, bold, sans-serif font on the right side of the image.

**Gracias por  
su atención**



**Gracias por  
su atención**