

DPI Fluoro "H"

SELECTION AT THE START OF THE FOCUS



DosePerImage in Fluoro is 6,4 nGy/image

DosePerImage in Fluoro is 10,2 nGy/image



LOADING THE DEFAULT DATA

Step 1 - Press the <Service> switch.



Step 2 - In the Service page you can see four switches on the right; they are set on <DISABLED>.

afety & Tab POST sion 2.0 15kW	System Power Version	15 kW U. 5.03	
Setting Data Code	Dose calibration correction facto	114	No fan
OPI Pulse "L" Start large Focus OPI Fluoro "N"	Start k∨ ∨alue	70	Heatsink Fan + heatsink
Image Intensifier state		Operating curve	Fluoro
Collimator state		Door contact state	Disabled
DAP system state Disabled		Fluoro Buzzer	Enabled
Dose Factor Disabled		Low martor pulsed n	Enabled m.
Filament safety Enabled	/	Load FLUORO tab	Disabled
Rotor safety Enabled	(Load PULSE tab	Disabled
85% KV safety		Load SETTING tab	Disabled
mA_Pulse Safety Enabled		Load DOSE tab	Disabled
djustment			
FLUORO COLLIMATOR			



Step 3 - Press all of them to turn them to <ENABLED>.

Safety & Tab POST Version 2.0 15kW	System Power Version	15 kW U. 5.03	Esc
Setting Data Code	Dose calibration correction facto	n 114	No fan Standard fan
DPI Fluoro "N" Start large Foc	Start kV Value	70	Heatsink Fan + heatsink
Image Intensifier state		Operating curve	Fluoro
Collimator state Disabled	l l	Door contact state	Disabled
DAP system state Disabled	li li	Fluoro Buzzer	Enabled
Dose Factor Disabled		Low mA for pulsed me	sf 15 n
Filament safety Enabled		Load FLUORO tab	Enabled
Rotor safety Enabled		Load PULSE tab	Enabled
85% KV safety		Load SETTING tab	Enabled
mA_Pulse Safety Enabled		Load DOSE tab	Enabled
Adjustment			
FLUORO COLLIMATOR			

Step 4 - After this, restart the system.

NB: each time you switch to <ENABLED>, the system asks to be restarted; you can skip this, set all the four switches to <ENABLED>, then restart the system just once.

Switch OFF and	
restart the System	
RETURN	

Now the default data are loaded on the system, which means you have to do a full calibration and configure all the system settings again.



RX TUBE ADJUSTMENT

The RX tube adjustment involves a fluoro adjustment and a pulse adjustment.

IMPORTANT: after any calibration it is wise to save the data by using the BACKUP functions. Refer to the 'Backup' chapter of this manual.

Fluoro adjustment

IMPORTANT: before doing any fluoro calibration you need to load the FLUORO default data. This is to be done either if you want to adjust both the curves or if you only need to adjust one of them. In this last case the curve that is not adjusted is set to default.

Step 1 - In the Service page set the <Load FLUORO tab> switch to ENABLED. Then restart the system.

Setting Data Code	Dose calibration correction factor	114	No fan Standard fan
DPI Pulse "L" Start large Focus DPI Fluoro "N"	Start KV Value	70	Heatsink Fan + heatsink
Image Intensifier state	0	perating curve	Fluoro
Collimator state Disabled	D	oor contact state	Disabled
DAP system state Disabled	FI	uoro Buzzer	Enabled
Dose Factor Disabled	Lo	ow mA for pulsed moc	Enabled m
Filament safety	Lo	ad FLUORO tab	Enabled
Rotor safety Enabled	La	ad PULSE tab	Disabled
85% KV safety Enabled	Lo	ad SETTING tab	Disabled
mA_Pulse Safety Enabled	Lo	ad DOSE tab	Disabled



Step 2 - In the start page be sure that continuous RX mode is selected. Then press <Service>.



Step 3 - In the <Serivice> page press <Fluoro> to access the Fluoro calibration page.

Setting Data	Code	correction facto	r 114	No fan
OPI Fluoro "N"	art large Focus	Start KV Value	70	Fan + heatsink
Image Intensifier state	Enabled		Operating curve	Fluoro
Collimator state	Disabled		Door contact state	Disabled
DAP system state	Disabled		Fluoro Buzzer	Enabled
Dose Factor	abled		Low mA for pulsed mod	e sf
Filament safety	Enabled		Load FLUORO tab	Disabled
Rotor safety	Enabled		Load PULSE tab	Disabled
85% kV safety	Enabled		Load SETTING tab	Disabled
mA_Pulse Safety	Enabled		Load DOSE tab	Disabled
d <u>justm</u> ent				



Step 4 - This is the Fluoro calibration page.

You need to calibrate the Fluoro and Isowatt curves, and large and small focus for both the curves; so you have to do four calibrations.

In the figure you have Fluoro curve and small focus; to do calibration press the switch circled below, then press the RX button to X-ray, and keep it pressed until the calibration is over.

Fluoro Adjustme Version 2.0 15kW	ent POST"0"	System Power Version	15 kW 5.03	II.9"
Ready				
•	Operating curve	Fluoro		
40 kV 0.20 mA	Feedback mA	0.00]	
0: 0 min:s 0.0 mGy*cm ²	BIT mA	670 0		
	Filame Monobloc	nt	J	00

Step 5 - Now switch to large focus by pressing the proper button, press the button with the two matching arrows and do the second calibration.

Fluoro Adjustme Version 2.0 15kW	ent POST"0"	System Power Version	15 kW 5.03	11.9"	Esc
Ready					
•	Operating curve	Fluoro			-
40 KV					
0.20 mA	Feedback mA	0.00	1		
0: 0 min:s	BIT mA	670			
0.0 mGy*cm ²	I_Primary	0			
	Filame	nt		0.0	•



- **Step 6** You still miss the two calibration for the Isowatt curve; so restart the system, press the button for the selection of the Isowatt curve in the Service page, then restart the system again.
- **Step 7** Repeat Step 2 and Step 3 then press the two matching arrows button and do the third calibration.

Fluoro Adjustme Version 2.0 15kW	nt POST "0"	System Power Version	15 kW 5.03	II. 9''	Esc
Ready					
•	Operating curve	IsoWatt)	[•
				(
40 KV			-		
0.20 mA	Feedback mA	0.00			
0: 0 min:s	BIT mA	670			
0.0 mGy*cm ²	I_Primary	0			
	Filamer			0.0]
	Monobloci	« [0.0	

Step 8 - At last, select the small focus again, press the two matching arrows button and do the fourth calibration. Restart the system.

Fluoro Adjustme Version 2.0 15kW	ent POST "0"	System Power Version	15 kW 5.03	11.9"	Esc
Ready					
-	Operating curve	IsoWatt			
40 kV			1		
0.20 mA	Feedback mA	0.00 670			
0.0 mGy*cm ²	I_Primary	0			
	Filamei Monobloc	nt 🗌 👘		0.0	



Pulse adjustment



Step 1 - In the start page, be sure that pulse mode is selected. Then press <Service>.

Step 2 - You have to do seven calibrations for the pulse mode: three for the large focus and tour for the small focus. Select one of the four buttons at the bottom of the screen; here we choose the large focus at 120 mA, but only as an example.

Setting Data Code	Dose calibrat	ion 114	No fan Standard fan
DPI Pulse "L" Start large F	Start KV Value	e 70	Heatsink Fan + heatsin
Image Intensifier state	ed	Operating curve	Fluoro
Collimator state	ed	Door contact state	Disabled
DAP system state	ed	Fluoro Buzzer	Enabled
Dose Factor Disabled		Low mA for pulsed m	Enabled
Filament safety	ed	Load FLUORO tab	Disabled
Rotor safety	ed	Load PULSE tab	Disabled
85% KV safety Enable	ed	Load SETTING tab	Disabled
mA_Pulse Safety	ed	Load DOSE tab	Disabled
Adjuctment	PU	LSE LF 120 mA	LSE SF 60 mA



Step 3 - Now you are in the Large Focus – 120 mA Pulse calibration page. Just press the RX button and keep it pressed to do the calibration.

Pulse Adjustment Version 2.0 15kW	POST "0"	System Power Version	15 kW 5.03	11. 9"	Esc
Ready			э М		
•					104 "
40 KV					
120.00 mA 0: 0 min:s	Feedback r BIT mA	nA 0 12	.00 250		
0.0 mGy*cm ²	I_Primary		0		
	Filame	nt		0.0]
	Monobloc	.k 🗌		0.0	

NOTE

As the calibration ends, a <WAIT> message appears in the middle of the screen. You must wait for 90 seconds before performing the other adjustments. This wait time is meant to prevent you from doing a full cycle of calibrations and thus overstressing the tube. It appears after each pulse calibration.

Pulse Adjustment Version 2.0 15kW	POST "0"	System Power Version	15 kW 5.03	II. 9''	Esc
Ready			د بې		
40 KV	WAI	T			104 "
120.00 mA 0: 0 min:s	Feedback BIT mA	mA 0 12	.00 :50		
0.0 mGy*cm ²	I_Primary		0		
	Filami Monoblo	ent en se		0.0	



Step 4 - To perform the other calibrations you need to return to the <Service> page and select them from there (you can do this even before the wait time ends, but you still cannot x-ray).



Step 5 - Now you are in the Large Focus – 60 mA Pulse calibration page. If the wait time has ended, press the RX button and keep it pressed to do the calibration.

Pulse Adjustment Version 2.0 15kW	POST " 0 "	System Power Version	15 kW 5.03	11.9"	Esc
Ready			3 M)	
•					208 "
40 kV 60.00 mA 0: 0 min:s 0.0 mGy*cm ²	Feedback BIT mA I_Primary	mA 0 1'	.00 100 0		
	Filame Monobloo	nt		0.0	

As the calibration ends, wait for 90 seconds before performing the other adjustments (see NOTE in step 3).



Step 6 - To perform the other calibrations you need to return to the <Service> page and select them from there.



Step 7 - Now you are in the Small Focus – 60 mA Pulse calibration page. If the wait time has ended, press the RX button and keep it pressed to do the third calibration.

Pulse Adjustment Version 2.0 15kW	POST "0"	System Power Version	15 kW 5.03	II 9 "	Esc
Ready			Ŵ		
•					<u>104 ••</u>
40 kV 60.00 mA	Feedback	mA (0.00		
0: 0 min:s 0.0 mGy*cm²	BIT mA I_Primary		940 0		
	Filame	ent 🗌		0.0	
	Monoblo	sk [0.0]

As the calibration ends, wait for 90 seconds before performing the other adjustments (see NOTE in step 3).



Step 8 - To perform the next calibration left click on the switch and access the proper page.

Safety & Tab POST /ersion 2.0 15kW	" 0" System Power Version	15 kW 11 9" 5.03	Esc
Setting Data Code	Dose calibration correction facto	n 114	No fan Standard fan
DPI Fluoro "N"	Start KV Value	70	Heatsink
Image Intensifier state	Ĩ	Operating curve	Fluoro
Collimator state Disable		Door contact state	Disabled
DAP system state		Fluoro Buzzer	Enabled
Dose Factor Disabled		Low mA for pulsed mo	de <u>sf 15 m/</u>
Filament safety	1	Load FLUORO tab	Disabled
Rotor safety		Load PULSE tab	Disabled
85% KV safety		Load SETTING tab	Disabled
mA_Pulse Safety		Load DOSE tab	Disabled
Adjustment	PUL	SE LF 120 mA PULS	E SF 60 mA
	PUL	SE LF 60 mA	E SF 30 mA
	PUL	SE LF 30 mA	E SF 15 mA PLS SF 10 m/

Step 9 - Proceed in this way with all the values to be calibrated.

afety & Tab POST "0" rsion 2.0 15kW	System Power Version	15 kW 5.03	II. 9''	Esc
Setting Data Code	Dose calibration correction factor	114		No fan Standard fan
DPI Fluoro "H"	Start KV Value	70		Heatsink Fan + heatsink
Image Intensifier state Enabled		Operating cu	rve	IsoWatt
Collimator state Enabled		Door contact	state	Disabled
DAP system state Disabled		Fluoro Buzze	r	Enabled
Dose Factor Disabled		Low mA for p	ulsed mode	Enabled mA
Filament safety		Load FLUOR	O tab	Disabled
Rotor safety Enabled		Load PULSE	tab	Disabled
85% KV safety Enabled		Load SETTIN	IG tab	Disabled
mA_Pulse Safety Enabled		Load DOSE t	ab	Disabled
djustment	PULS	E LF 120 mA	PULSE	SF 60 mA
	PULS	SE LF 60 mA	PULSE	SF 30 mA
	PULS	SE LF 30 mA	PULSE	SF 15 mA PLS SF 10

Pulsed mode calibration procedure is finished, turn off the generator.



COLLIMATOR ADJUSTMENT

Step 1 - Access the <Service> page. Here be sure that the collimator is enabled; if so, you will see a big grey button named <Collimator> at the bottom of the page. Press it to access the collimator calibration page.

Safety & Tab POST "0" Version 2.0 15kW	System Power Version	15 kW 5.03	II 9''	Esc
Setting Data Code	Dose calibration correction factor	114		No fan
DPI Pulse "L" Start large Focus DPI Fluoro "N"	Start KV Value	70		Heatsink Fan + heatsink
Image Intensifier state		Operating o	curve	Fluoro
Collimator state)	Door conta	ct state	Disabled
DAP system state		Fluoro Buzz	zer	Enabled
Dose Factor Disabled		Low mA for	pulsed mode	Enabled MA 1/2
Filament safety		Load FLUO	RO tab	Disabled
Rotor safety Enabled		Load PULS	E tab	Disabled
85% KV safety Enabled		Load SETT	ING tab	Disabled
mA_Pulse Safety Enabled		Load DOSE	: tab	Disabled
Adjustment				
FLUORO COLLIMATOR	\mathbf{D}			

Step 2 - This is the collimator adjustment page. First select the I.I. total field.





Step 3 - Then press the RX switch to make an RX exposition. While the RX button is pressed, use the switches circled in the figure below to set the diaphragms opening.



Step 4 - Now release the RX switch and read the two values circled below.





Step 5 - Adjust the values circled in the figure below by using the arrow keys.



Step 6 - Now press the two buttons aside to save the set values.



Step 7 - To end the collimator calibration you need to repeat this whole procedure for the I.I. zoom 1 and zoom 2.



BACKUP

Backup				
Pulse	Fluoro			
Collimator	IsoWatt			

It is recommended to use the Backup function after any calibration. Pressing the buttons on the left allows to save, through four separate files, the data of Pulse, Fluoro curve, Isowatt curve, and Collimator adjustments.

IMPORTANT: you must use these four buttons one by one, turning off and restarting the system, and then performing the next adjustment, after each single press.

EXAMPLE

As an example, we suppose that you're doing a full calibration. A correct sequence of actions is as follows.

- Step 1 Turn on the system, select the pulse mode in the Work page; then enter the Service page and perform the all pulse calibrations (both focuses). Enter the Setting Data page and press the <Pulse> button (BACKUP). Then turn off the system.
- **Step 2** Turn on the system again, enter the Service page and press the <Load FLUORO tab> button. Turn off the system.
- Step 3 Turn on the system, select the fluoro mode from the Work page; then enter the Service page and perform the fluoro calibration (both focuses).
 Now let's suppose that you've just adjusted the Fluoro curve. Enter the Setting Data page and press the <Fluoro> button (BACKUP). Then turn off the system.
- **Step 4** You now need to choose the Isowatt curve: turn on the system again, enter the Service page and select the Isowatt curve from there. Turn off the system.
- Step 5 Turn on the system again, select the fluoro mode from the Work page; then enter the Service page and perform the fluoro calibration (both focuses). This time you have adjusted the Isowatt curve, so enter the Setting Data page and press the <Isowatt> button (BACKUP). Turn off the system.
- Step 6 Turn on the system again, be sure that the collimator is enabled (check it in the Service page), then perform the collimator adjustment. Enter the Setting Data page and press the last <Collimator> button (BACKUP). Turn off the system one last time.
- **Step 7** Restart the system, which is now ready for use.

IMPORTANT: it does not matter the order you choose to use the four buttons. Just remember to restart the system anytime you press one of them. Pay attention when you change the fluoro curve (FLUORO/ISOWATT), because you need to restart the system once more to load the new curve (this is what happens in STEP 3 of the example above).



RESTORE

Rest	оге		
	Pulse	Fluoro	
	Collimator	IsoWatt	

The Restore buttons allow to load the data that had been previously saved.

This is especially useful after updating the system

software, since it prevents you from doing any calibration.

NOTE: unlike the BACKUP buttons, you can press all of them and then restart the system.