

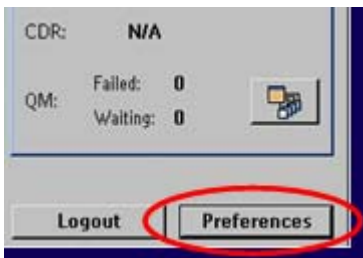
Z-Axis Dose Modulation (Z-DOM)

This is an application guide for Z-DOM on Brilliance Scanners 2.0 and higher.

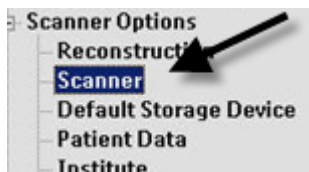
For more detailed information, please refer to the Philips operator or user guide.

- Getting started with Z-DOM

- Philips Dose Tools are turned on under “Preferences.”



- Select “Scanner”



- Ensure that “Use Z-DOM” is selected.



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Software Versions 2.0 and higher

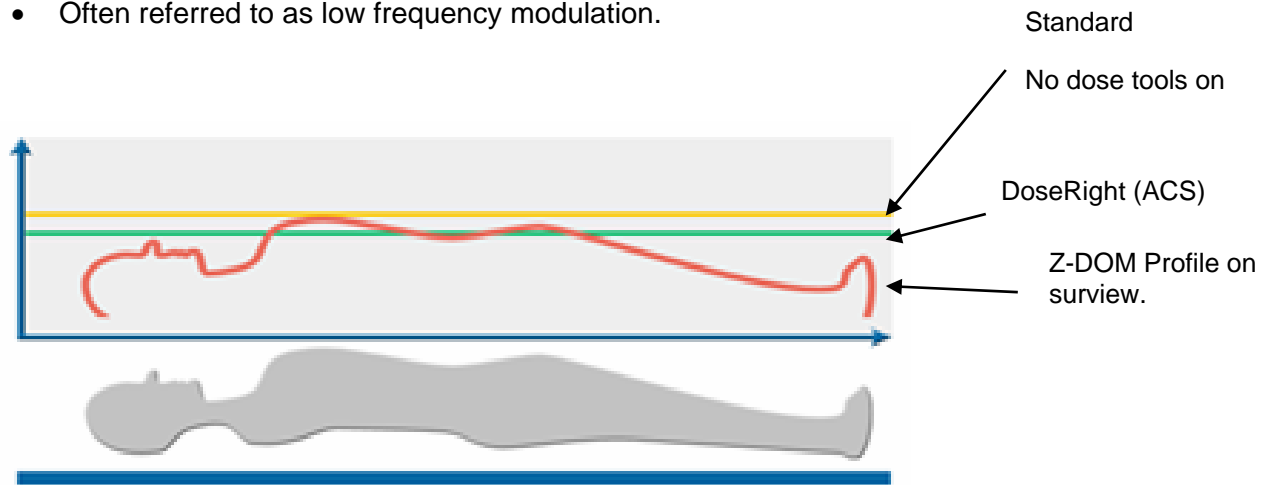
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• HOW DOES Z-DOM WORK?

- A protocol is chosen and a survview scan is acquired.
- The survview data is processed. As a result, a mAs profile along the z-axis is calculated, so that the same noise level is maintained in all of the slices along the z-axis.
- The system looks at the absorption co-efficient of the body and determines areas of higher and lower attenuation values. Refer to red line below.
- Often referred to as low frequency modulation.



- If no dose tools are utilized, the scanner uses the set mAs and a constant dose of radiation is delivered to the patient. Thus there is little to no dose savings. Refer to gold line above.
- Z-DOM results in improved uniformity of image quality along the z-axis.

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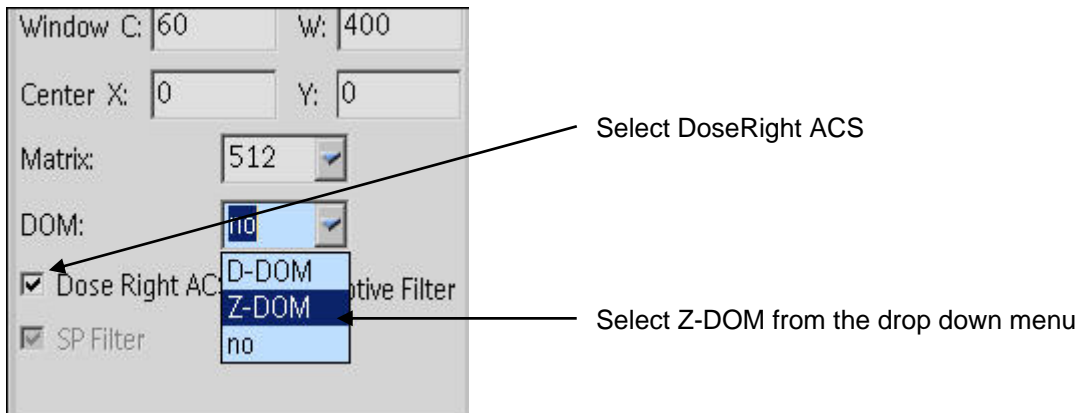
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Z-DOM IN CLINICAL USE

- Z-DOM must be selected before the surview is taken.
- You must have DoseRight ACS turned on before the surview for Z-DOM to work.
- ACS sets the maximum mAs based on the absorption coefficient of the surview as compared to the pre-stored reference set.



- Z-DOM, used simultaneously with DoseRight ACS, will result in maximum dose savings.

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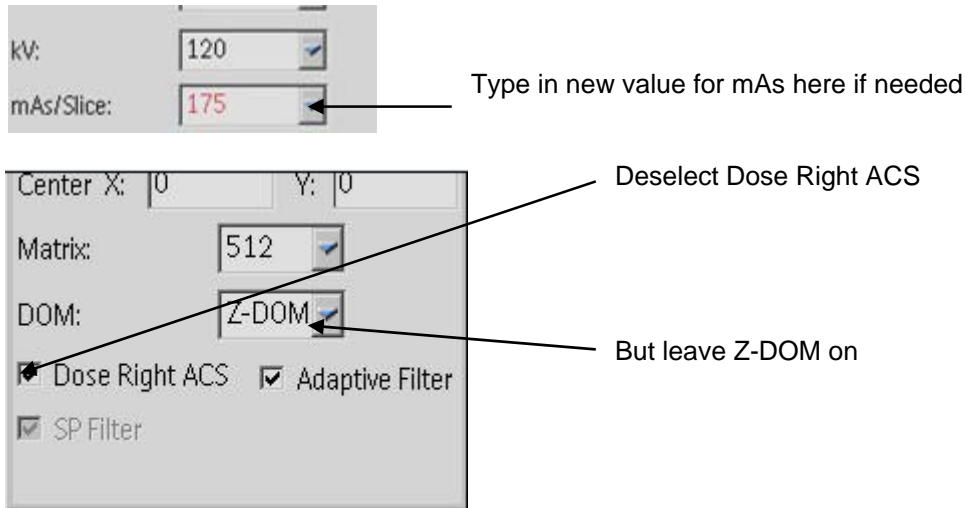
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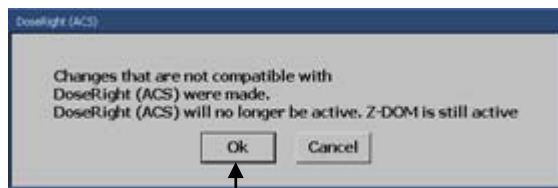
Clinical Guide

WHAT IF I DECIDE TO TURN ACS OFF AND ONLY USE Z-DOM AFTER THE SURVIEW?

- After acquiring the surview, you have the option to deselect DoseRight ACS while continuing to use Z-DOM.
- The mAs will be in red when ACS is on. This will alert the user that ACS is on and functioning.



- The following message will appear after you turn off DoseRight ACS or adjust the suggested mAs after the surview.



- Select "Ok" and continue with scan.
- Selecting "Cancel" will revert to the suggested mAs value.

Z-DOM NOTES

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- Z-DOM will not increase the mAs beyond the maximum in the protocol parameters
- Z-DOM will not decrease mAs by more than 70% of the planned mAs

EXAMPLE

If 175mAs is set in the protocol, the lowest mAs that would be used is 52.

- The minimum and average mAs value will now display during planning when utilizing ZDOM
- The minimum mAs provides information concerning the lowest mAs value that will be used during the series
- The average mAs provides feedback to operator as to mAs value that will be utilized for the majority of the study

Label: []

Start: -1152.5

End: -860.0

Length: 295.5

Direction: In Out

Thickness: 3 mm

Increment: 1.5 mm

kV: 120

mAs/Slice: 175

Minimum mAs/Slice: 52

Average mAs/Slice: 132

Evolving

Images: 196 CTDI: 12.3mGy
Time: 7.465s DLP: 414.5mGy*cm

- Z-DOM cannot be turned on after the surviver.
- Z-DOM is not used on axial scans (only helical).

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POSSIBLE PITFALLS WITH Z-DOM

- Planning beyond the surview limit by more than 30% will disable both ACS and Z-DOM.
 - The mAs will return to the protocol default and will be displayed in black.
- If the entire plan is outside the acquired surview, the system will utilize the default mAs. ACS and Z-DOM will be turned off.
- When a dual surview is acquired, the attenuation value is determined from the 90 degree surview.
 - The 90 degree surview and the 180 degree surview may result in slightly different values

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