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WEBINAR W-2-25

BiAA and Detector Angulation

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ARCOMA WEBINAR

BiAA and Detector Angulation • 14th of March 2025

- **Part I (All):**
  Introduction to BiAA and Detector Angulation

- **Part II (Application & Service):**
  Workflow and application settings
  > Q&A

Short break

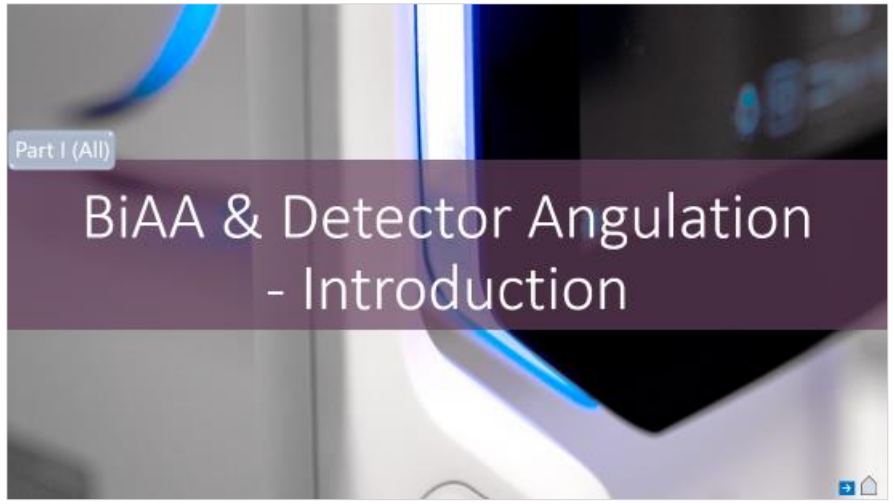
- **Part III (Service):**
  Detailed setup
  (See dedicated presentation related to System Upgrade)

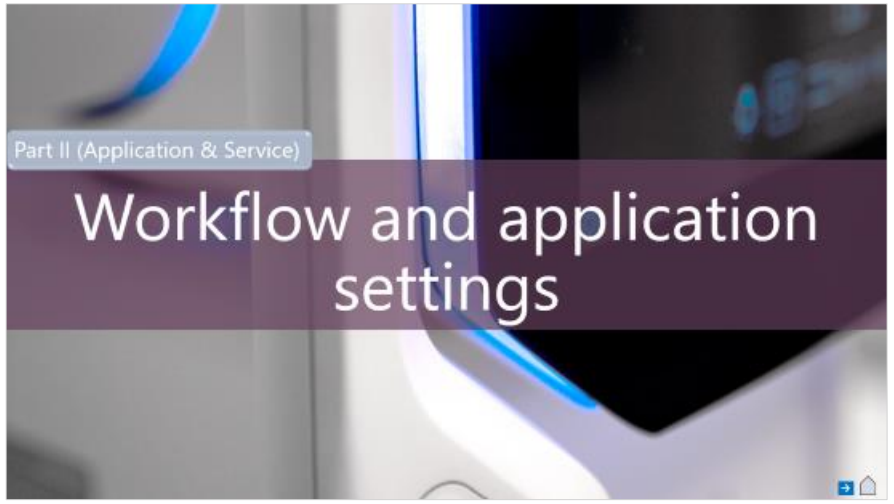
  Detailed description of BiAA parameters
  By Bart van Ginkel

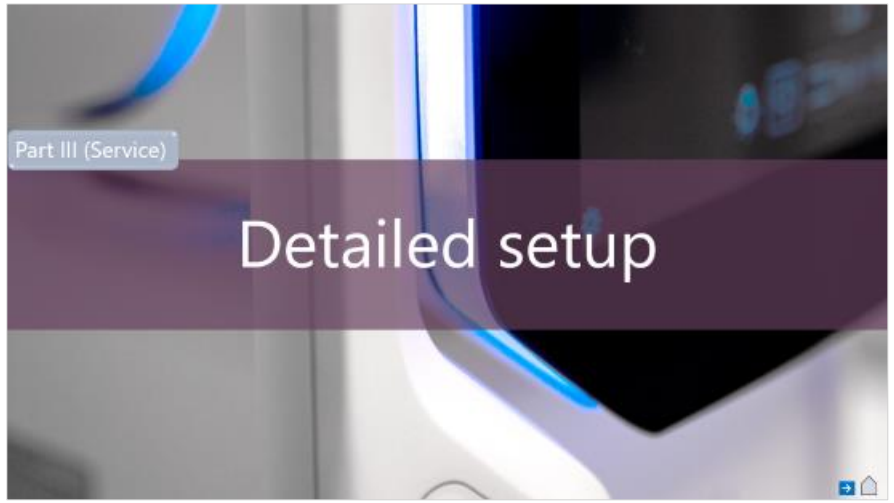
  > Q&A

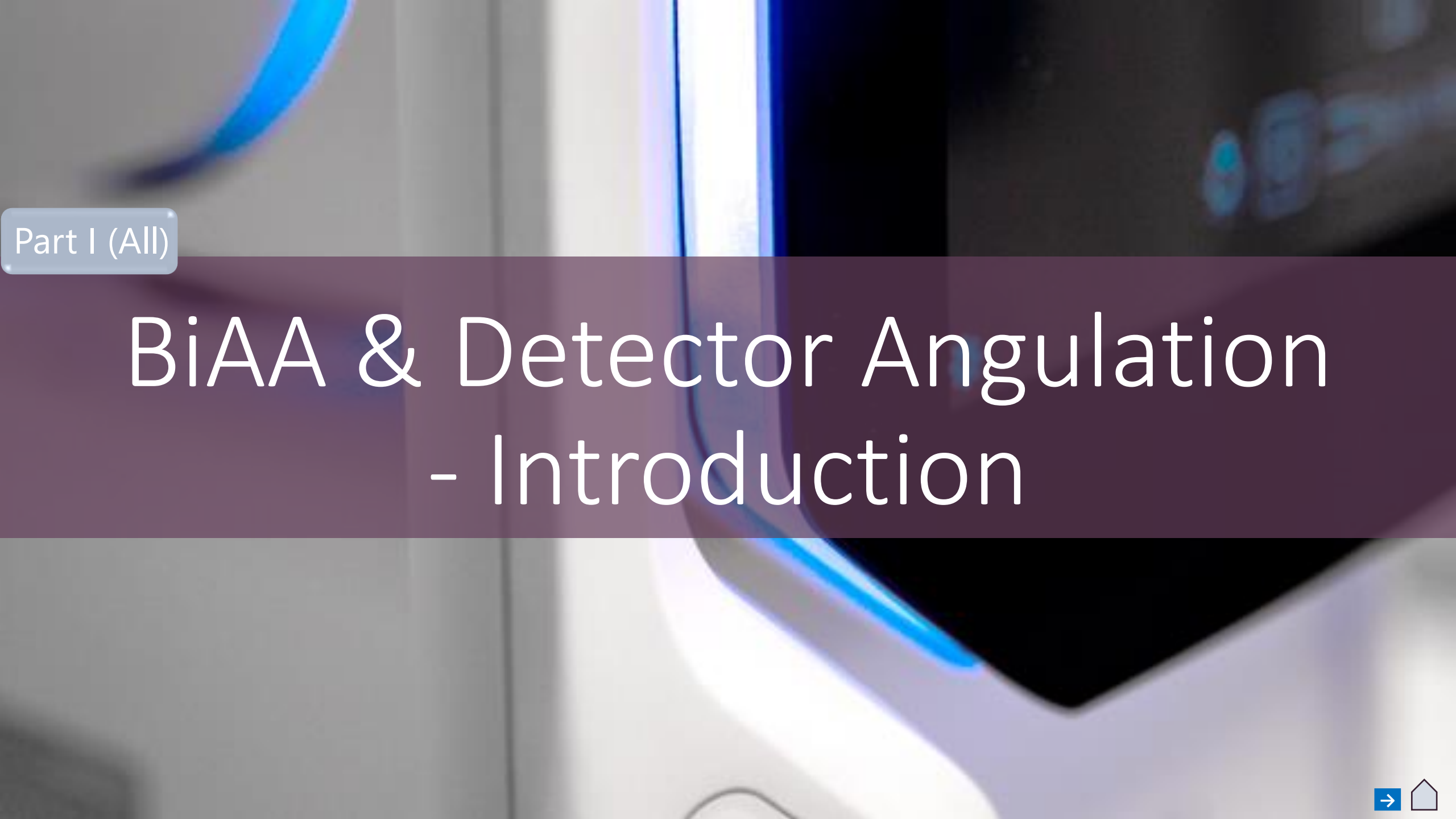
ARCOMA WEBINAR - OVERVIEW

BiAA and Detector Angulation • 14th of March 2025









Part I (All)

BiAA & Detector Angulation - Introduction

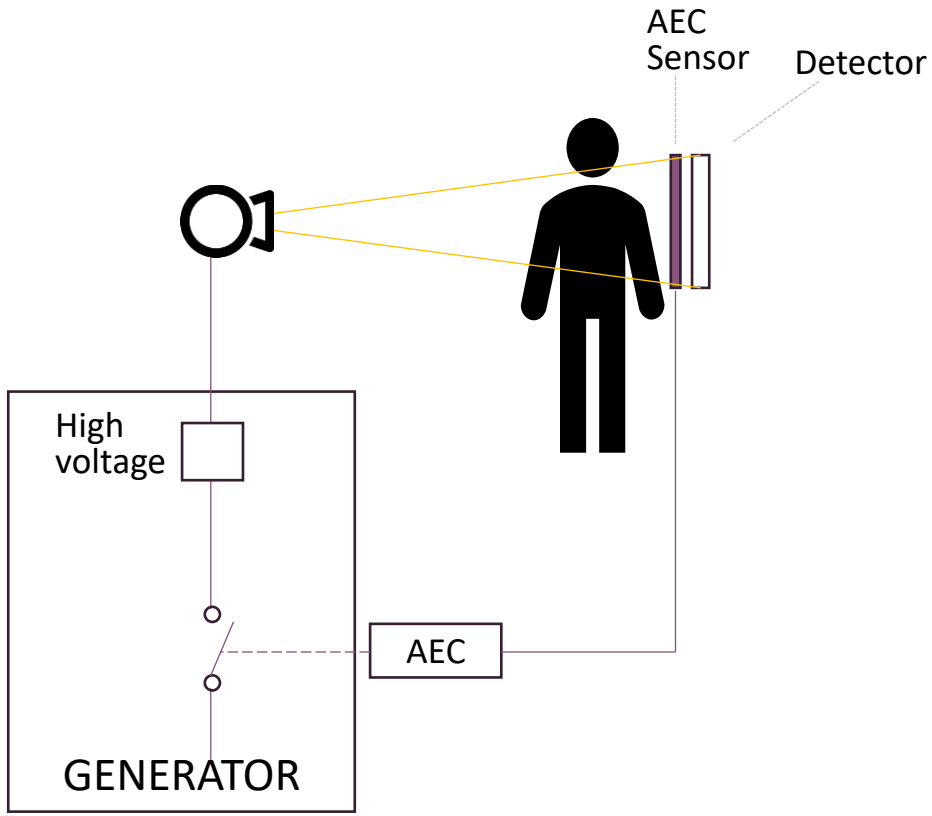
Why use AEC?

AEC (Automatic Exposure Control) in X-ray imaging offers several benefits, including:

- **Optimized Image Quality** – Ensures consistent and high-quality images by automatically adjusting exposure levels.
- **Reduced Radiation Dose** – Minimizes patient exposure to unnecessary radiation by using only the required dose.
- **Enhanced Workflow Efficiency** – Reduces the need for manual exposure adjustments, saving time for radiographers.
- **Improved Diagnostic Accuracy** – Helps produce clearer images with optimal contrast and detail, aiding in better diagnosis.
- **Consistency Across Examinations** – Provides uniform exposure settings for different patients and anatomical areas, improving repeatability.
- **Minimized Need for Retakes** – Reduces errors due to under- or overexposure, decreasing the need for repeat scans.
- **Better Patient Safety** – Lowers the risk of radiation-related health effects by preventing excessive exposure.
- **Automatic Adaptation to Patient Size and Density** – Adjusts exposure based on body thickness, ensuring appropriate imaging for all patients.

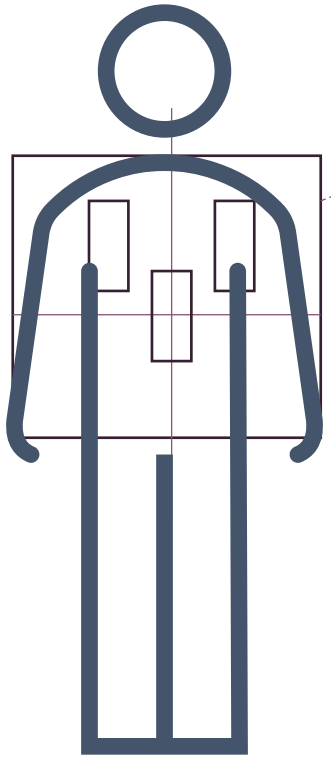
How does AEC work?

The AEC sensor measure the amount of X-ray radiation. The sensor continuously monitor the exposure level to ensure it meets the required threshold for high-quality image. Once the AEC sensor detect that the correct amount of radiation has been received for optimal imaging, the AEC system automatically stops the exposure.



How does AEC work?

For the Wall stand and Table there are three (3) AEC chambers that can be selected. By selecting different AEC chambers the exposure can be adapted for the anatomy of interest.



BiAA – Benefits

With the introduction of BiAA, Automatic Exposure can also be used for non-bucky examinations.

This will allow the same benefits for non-bucky examinations:

- **Optimized Image Quality**
- **Reduced Radiation Dose**
- **Enhanced Workflow Efficiency**
- **Improved Diagnostic Accuracy**
- **Consistency Across Examinations**
- **Minimized Need for Retakes**
- **Better Patient Safety**
- **Automatic Adaptation to Patient Size and Density**

BiAA - Introduction

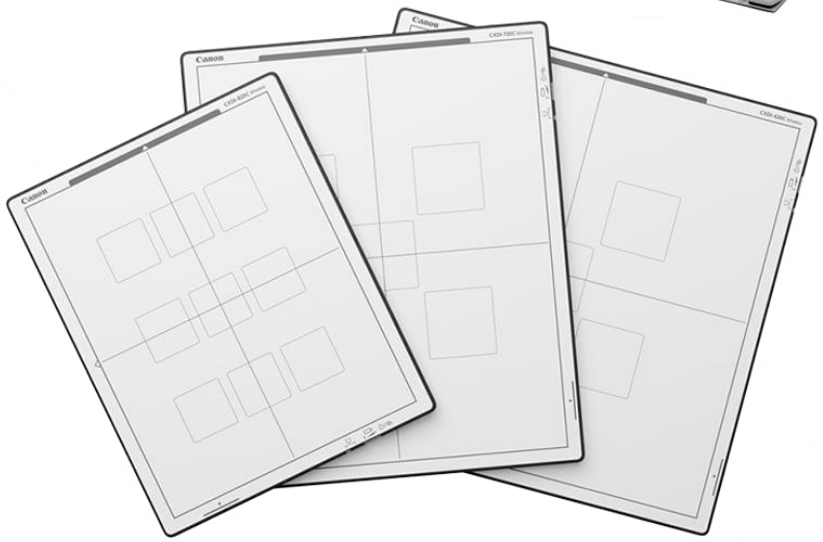
BiAA – Built-in AEC Assistance

The CXDI Elite series allows for automatically terminated exposures without the use of an additional receptor (ion chamber, solid state paddle, etc.).

BiAA is used for non-Bucky imaging in Arcoma X-ray systems. For Bucky imaging the built-in AEC chamber will still be used.

BiAA is available with the following detectors:

- CXDI-420C Wireless
- CXDI-720C Wireless
- CXDI-820C Wireless



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NON-BUCKY IMAGING SUPPORT

NEW

- DETECTOR ANGULATION - TUBE ADJUSTMENT
  > Tube angulation automatically adapts to the detector

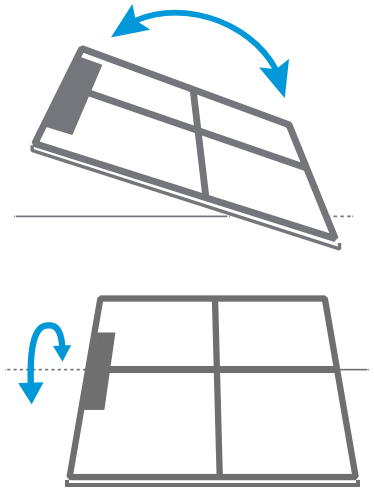
  Achieve tube – detector alignment also for free positioning imaging through manual adjustments or seamlessly with the Advanced Remote control's automatic feature.

  Speeds up your workflow and reduces the need for retakes.

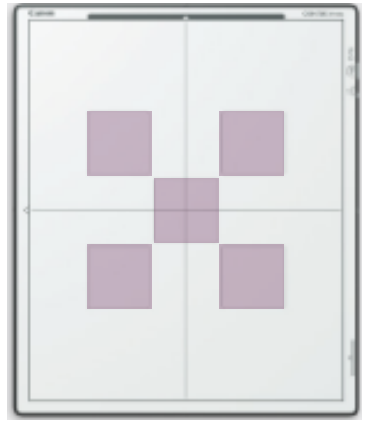
- DETECTOR AUTOMATIC EXPOSURE CONTROL (AEC)
  > Built-in AEC Assistance (BiAA)

  Integrated AEC within the detector streamlines the process. Select AEC chambers and benefit from Automatic Exposure also for free positioning imaging like bed side examinations.

NON-BUCKY IMAGING – BED SIDE



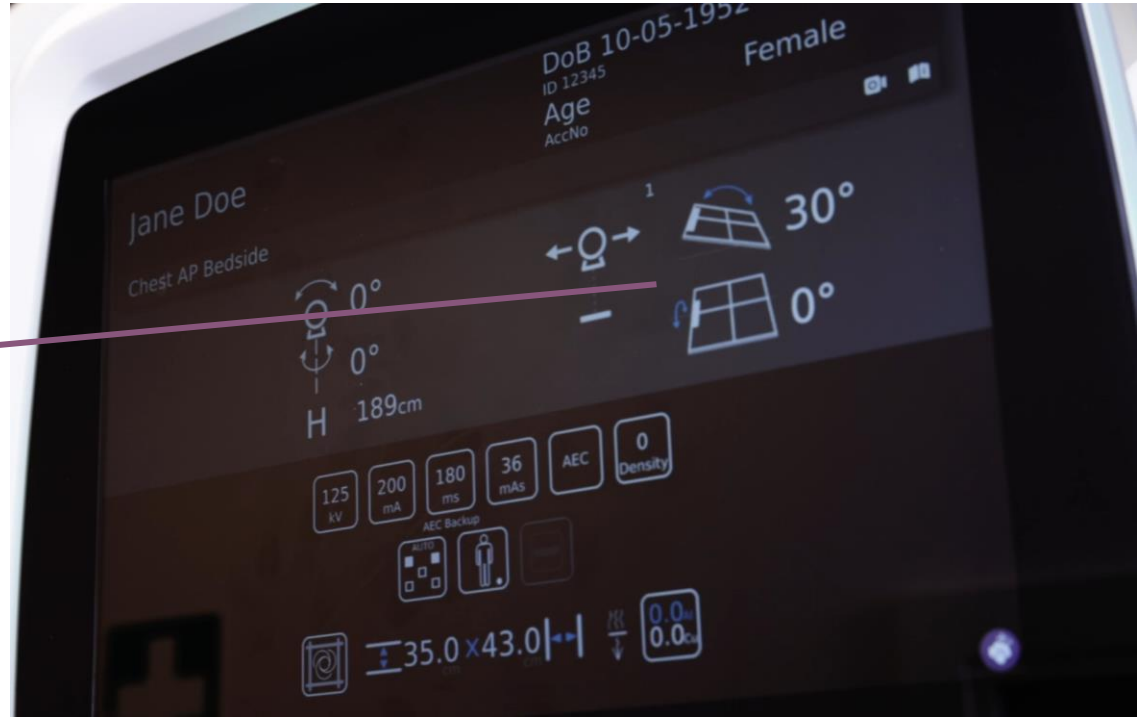
DETECTOR ANGLE



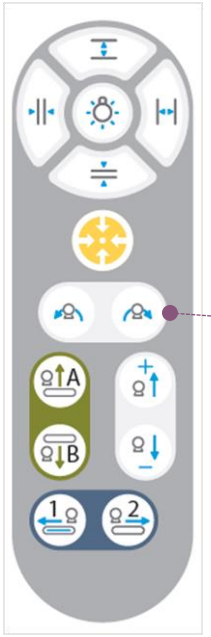
AEC IN DETECTOR

DETECTOR ANGULATION – TUBE ADJUSTMENT

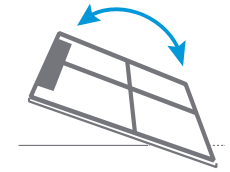
Elite detector Angulation is shown on the OTC display.



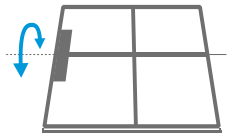
Adjust the tube angulation for the Elite detector angulation by pressing the Tube angulation button on the Advanced Remote control. Select Right or left rotation based on the position of the detector.



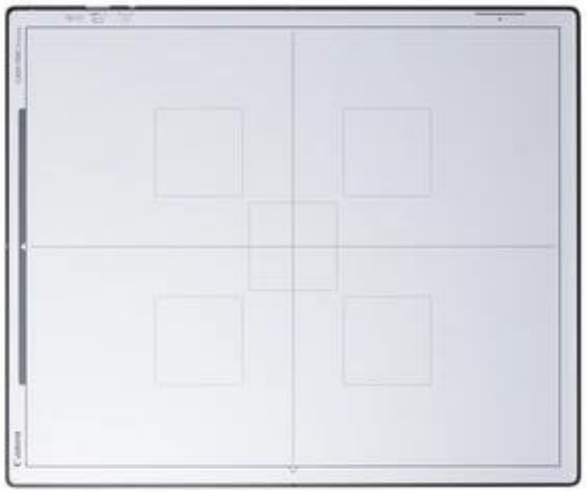
Tube angulation
– tracking the detector



30° PITCH



0° ROLL



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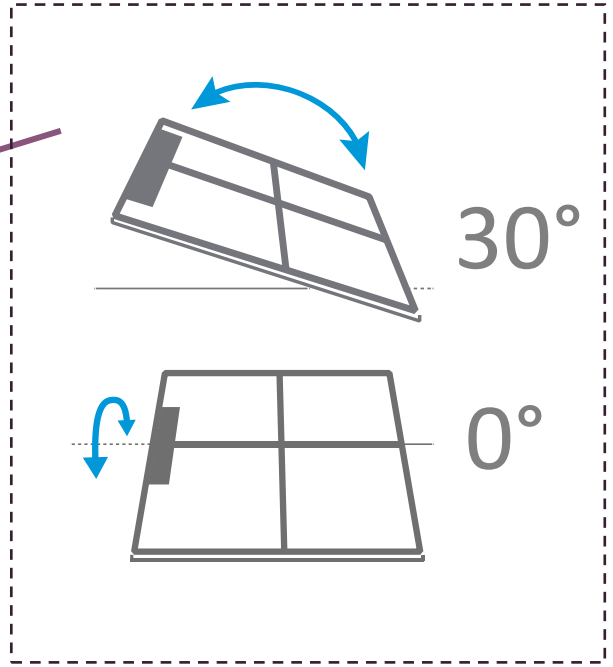
DETECTOR ANGULATION – TUBE ADJUSTMENT

> How it works

The detector angulation is shown on the tube display. The tube is easily aligned to the detector angulation either by pressing the angulation button on the Advanced remote control or by manually rotating the tube with guidance of the detector and tube values on the display.



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DETECTOR AUTOMATIC EXPOSURE CONTROL (AEC)
> How it works

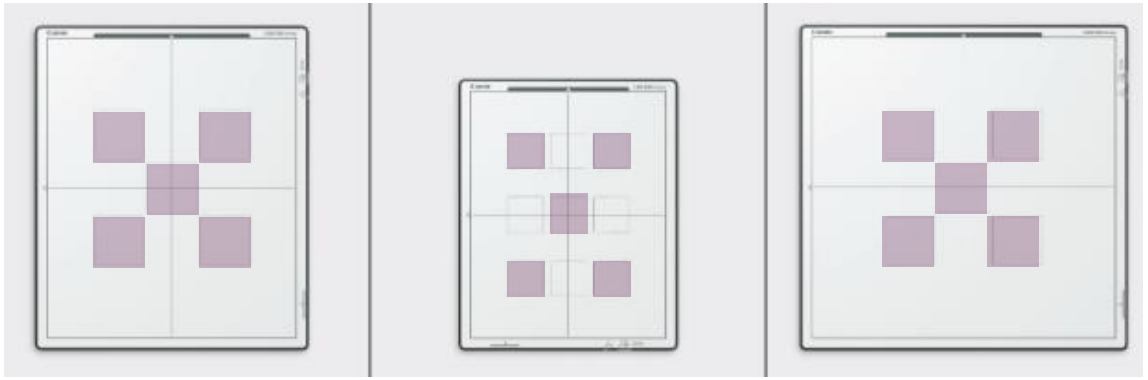
ARCOMA Precision i5 is allowing automatic terminated exposures also for free-position imaging such as bed side examinations. This is realized by detecting the received X-rays in real time directly in the Canon CXDI-Elite detector (CXDI-720C, CXDI-420C, CXDI-820C).

- Five AEC ROI* is detecting the accumulated pixel value corresponding to received X-rays in real time and notify the X-ray generator when the pixel value reaches a preset value.
- Wireless communication enables optimization of X-ray dose also for free-position imaging such as bed side examinations.

**ROI : Region Of Interest*

AEC via Ionization chamber is used for examinations in Wall stand and Table detector holder.

CXDI-720C | CXDI-820C | CXDI-420C



- CXDI-720C Wireless Detector: 35x43 cm (2.3 kg with battery)
- CXDI-420C Wireless Detector: 43x43 cm (2.7 kg with battery)
- CXDI-820C Wireless Detector: 27x35 cm (1.8 kg with battery)

Built-in AEC Assistance

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MARKETING MATERIAL

NEW VIDEO
Built-in AEC Assistance (BiAA)
Detector Angulation Guidance

https://drive.google.com/drive/folders/1BCw6MZggD0489coaXFqK6N3acq84WPqj

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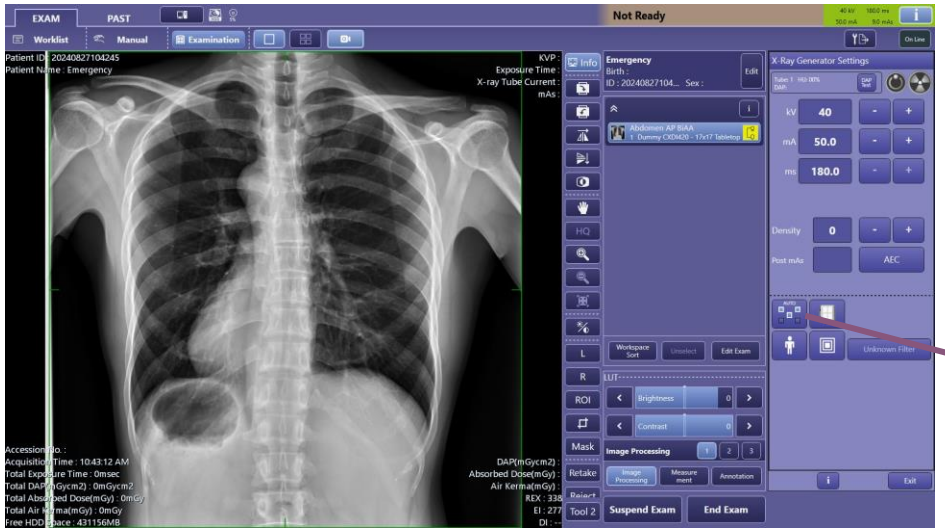
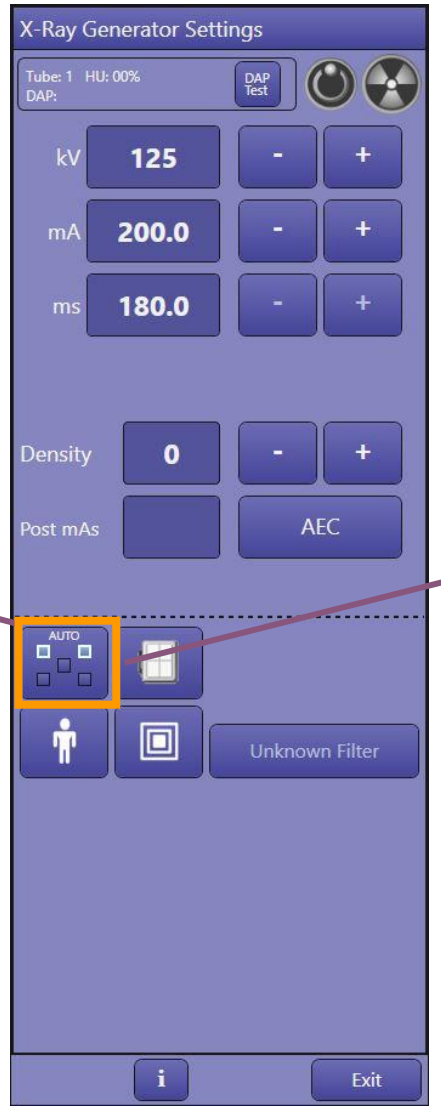
Part II (Application & Service)

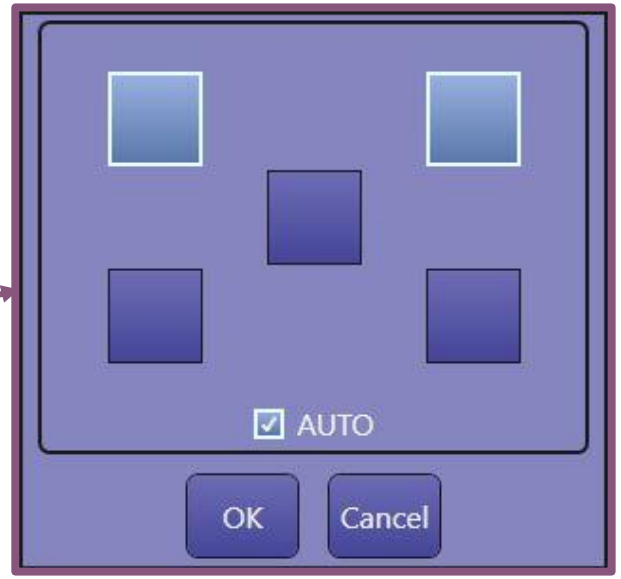
Workflow and application settings

How do I know that BiAA is active?

When BiAA is activated the AEC icon will show five AEC chambers.







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BiAA – Modes

When BiAA is activated the AEC icon will show five AEC chambers.

There are two different modes:

- Auto
- Manual / Zero degrees

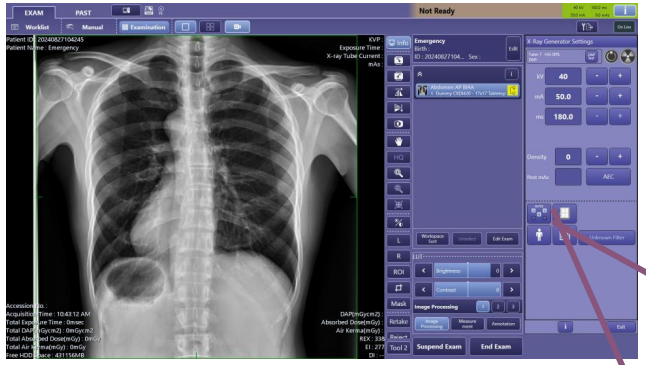
The following pages will describe:

> Difference between Auto and Manual

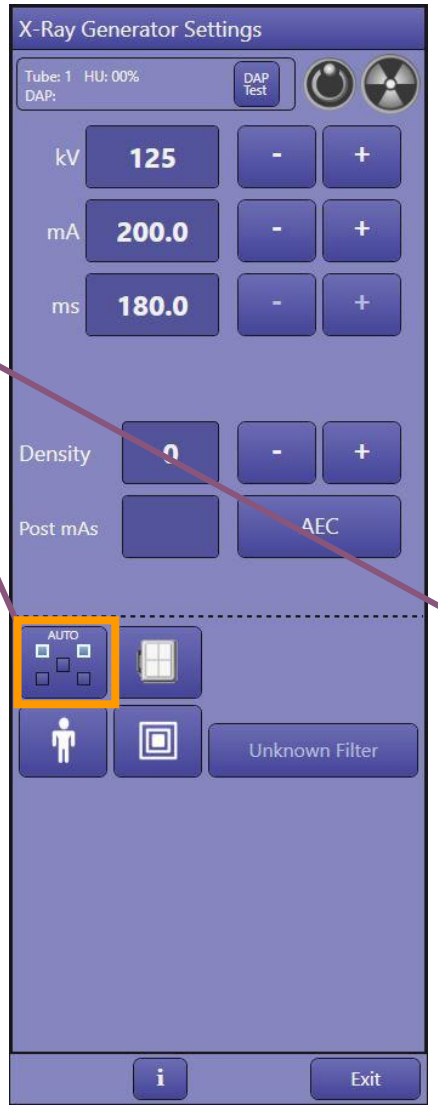
> How to use BiAA Auto mode.

> How to shift between Auto and Manual.

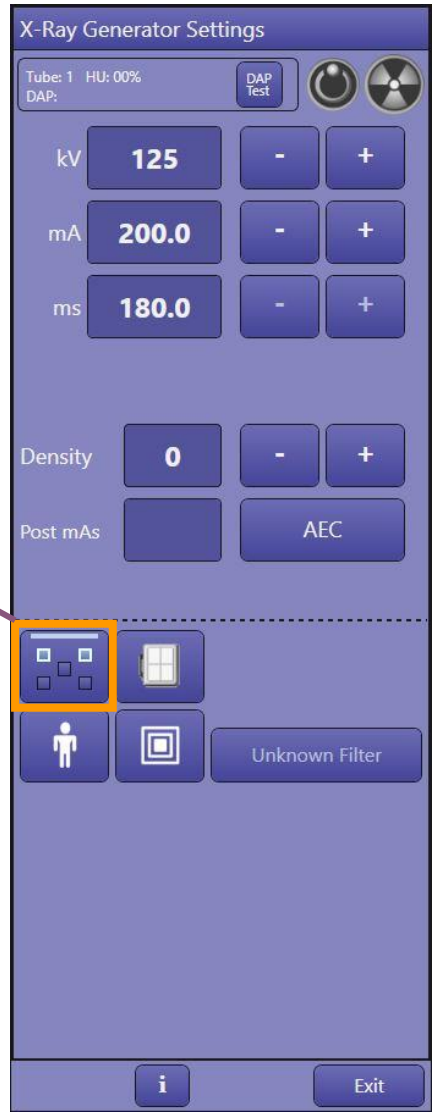
> How to use BiAA manual/zero mode.



AUTO



MANUAL / ZERO



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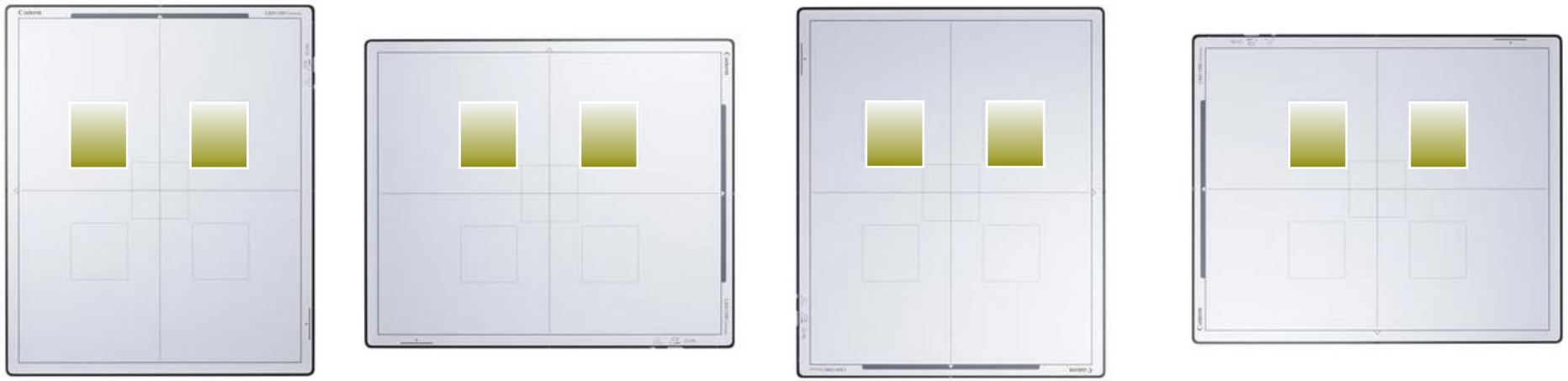
BiAA – Auto versus Manual Mode

= Active AEC chamber

Rotating the detector >

AUTO MODE



Rotating the detector >

MANUAL MODE

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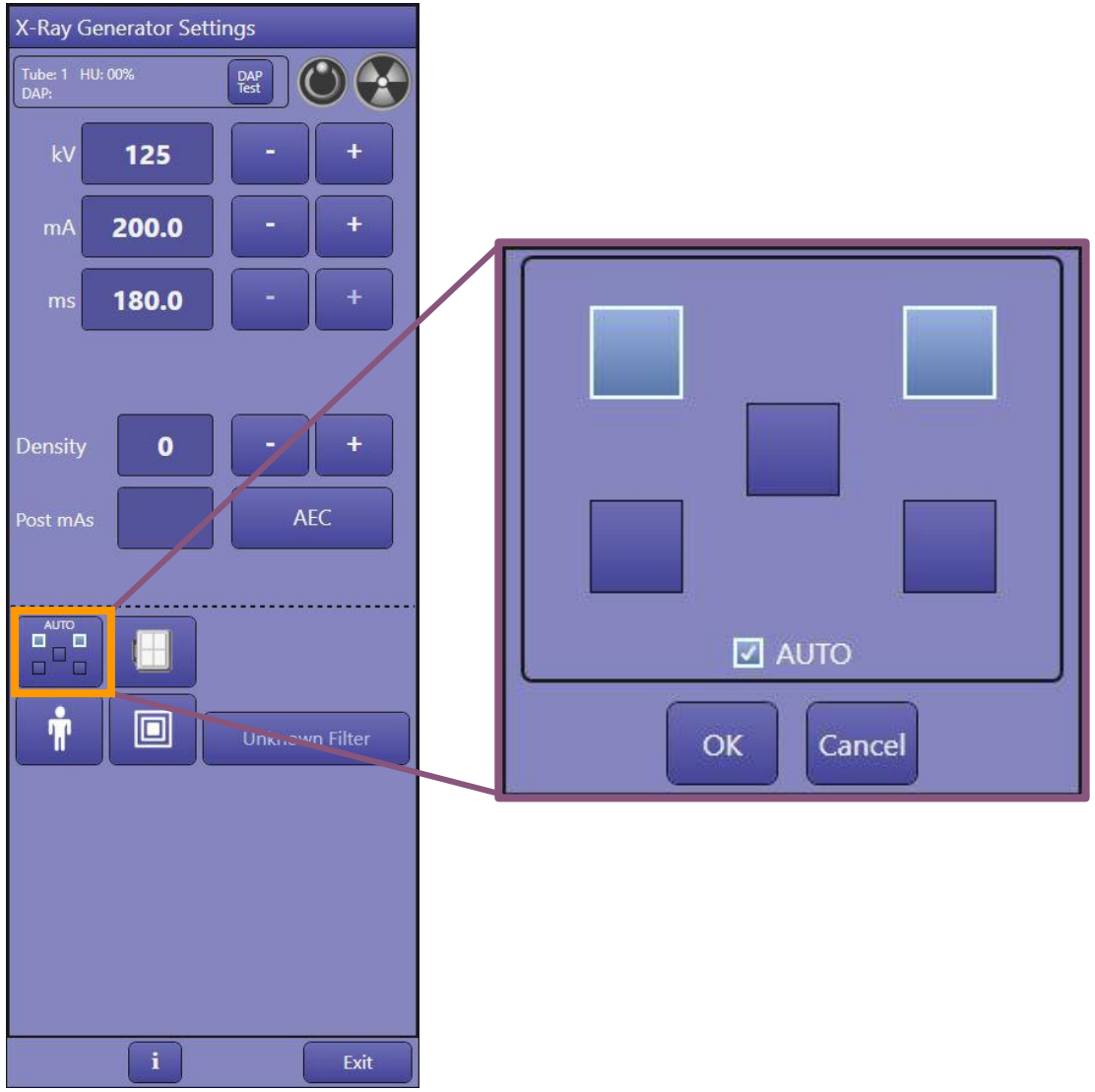
BiAA – Auto Mode

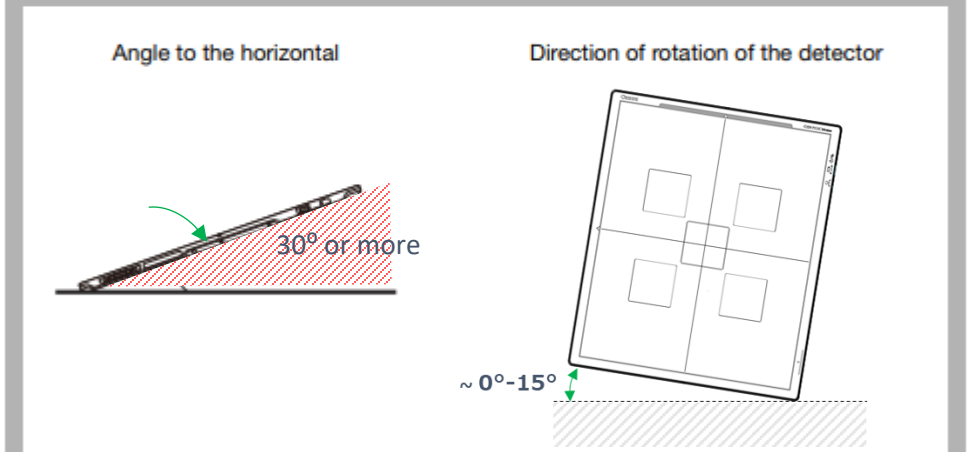


PREREQUEST

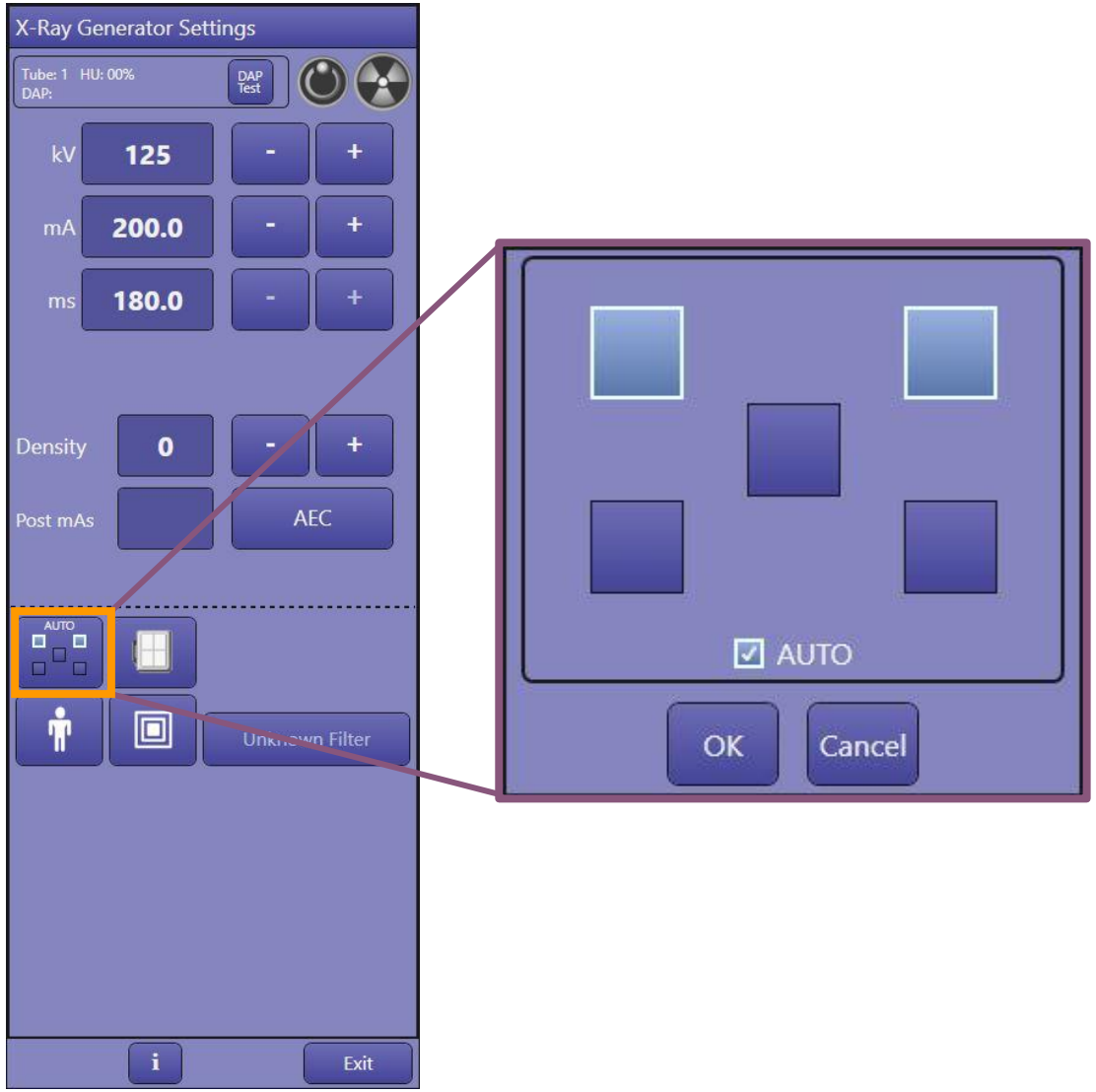
Detector angulation larger than 30°

Information

When you have selected an ROI pattern with an AUTO indication or the Auto synchronization with rotation option, be sure to keep the angle of the detector as follows.
Place the detector as upright as possible. In addition, do your best to not tilt the detector in the direction of rotation. If the angle of the detector is less than 30° to the horizontal or the detector is tilted in the direction of rotation, the angle of the detector may not be detected correctly. If this happens, you cannot perform exposure.



BiAA – Auto Mode



PREREQUEST

Detector angulation larger than 30°

WHAT HAPPENS WHEN PREREQUESTS IS NOT FULFILLED?

> Icon will shift color to orange.
> Exposure will be prevented and message displayed to the user.

ACTION BY USER

> User shall change to MANUAL / 0 degree mode and ensure that correct AEC chambers are selected.

How?

> De-select checkbox AUTO.

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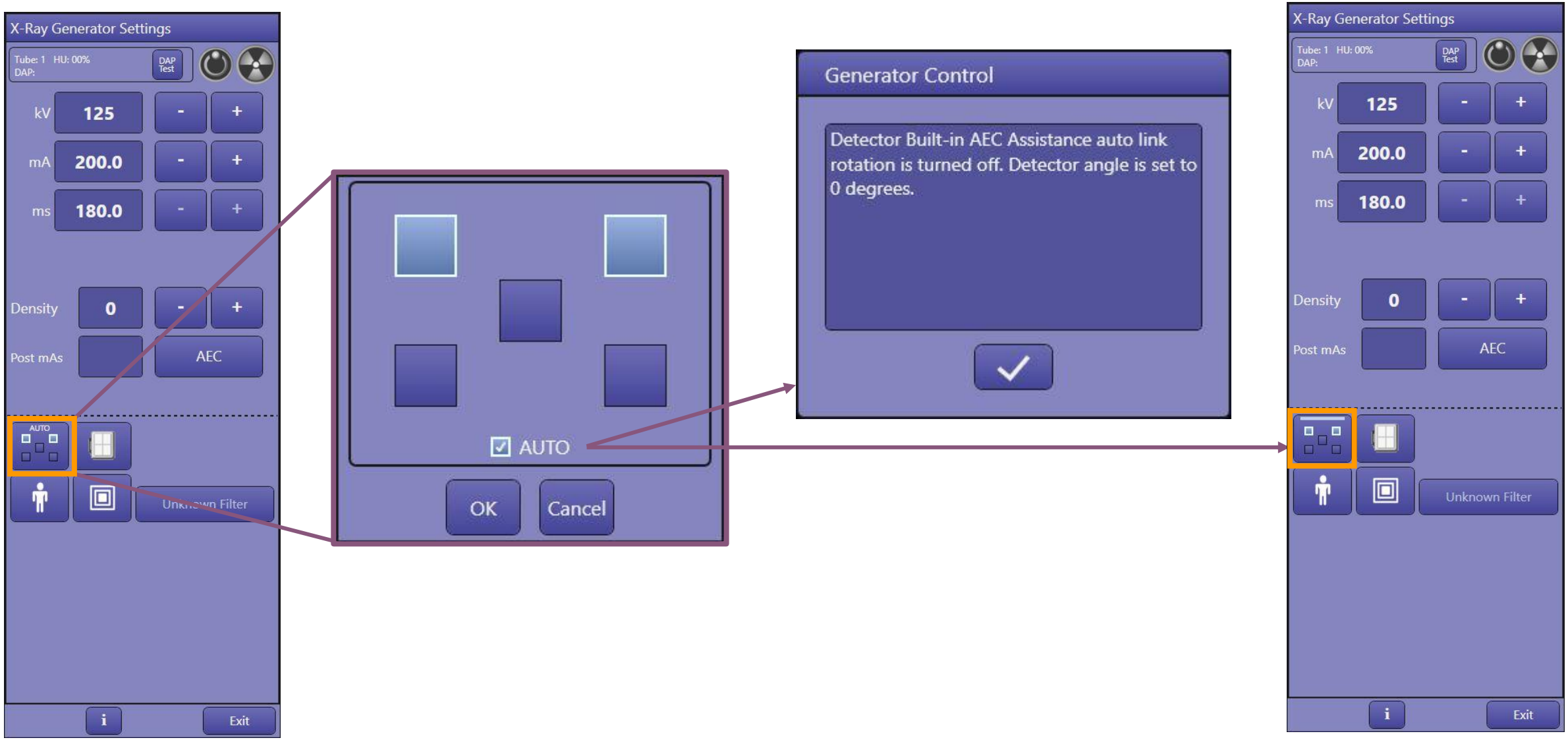
BiAA – Shift between Auto and Manual



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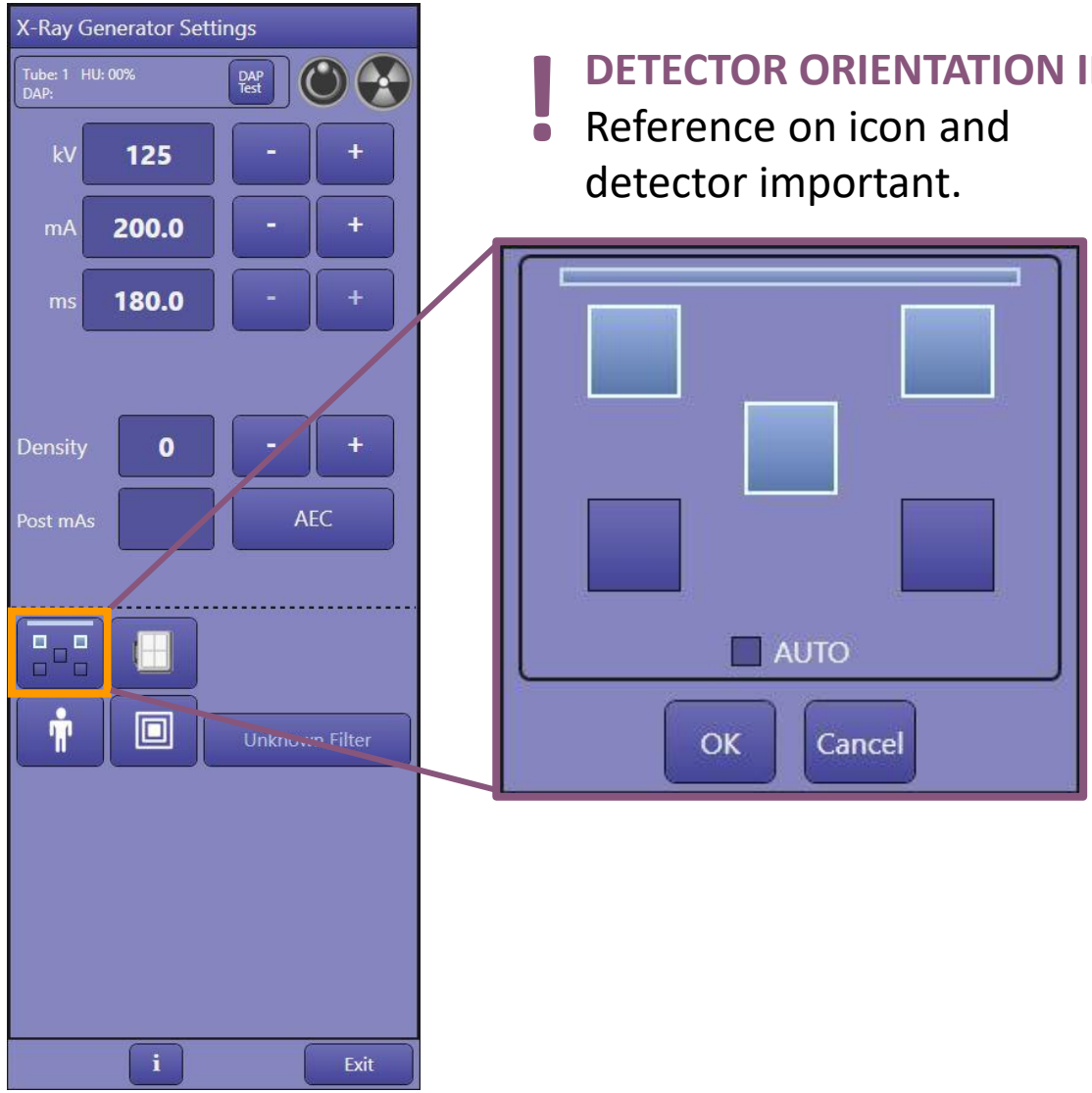
BiAA – Manual mode (0 degree mode)

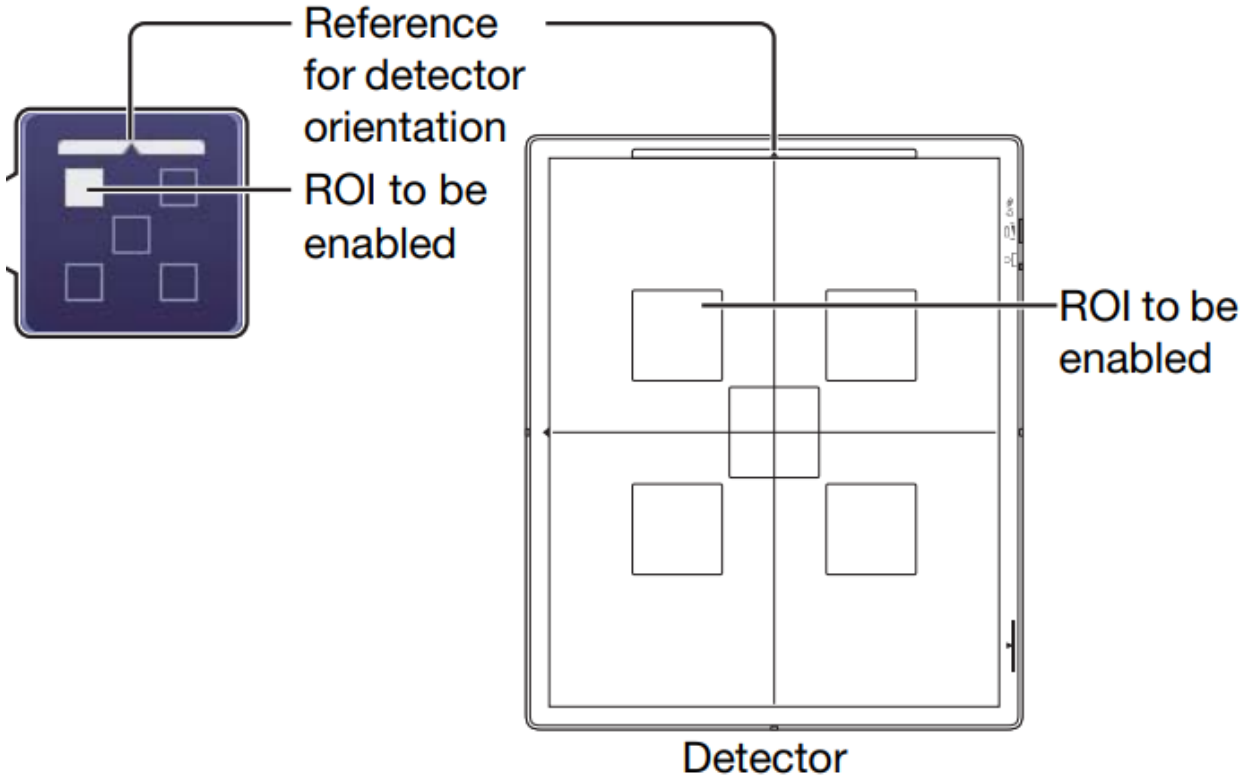


! DETECTOR ORIENTATION IMPORTANT

Reference on icon and detector important.

Important

Confirm that the position of ROI is appropriately set for your patient. If you perform exposure with an inappropriate position setting, a notification with an unexpected pixel value may be sent to the X-ray generator.



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BiAA – Manual mode (0 degree mode)

When BiAA is activated the AEC icon will show five AEC chambers.

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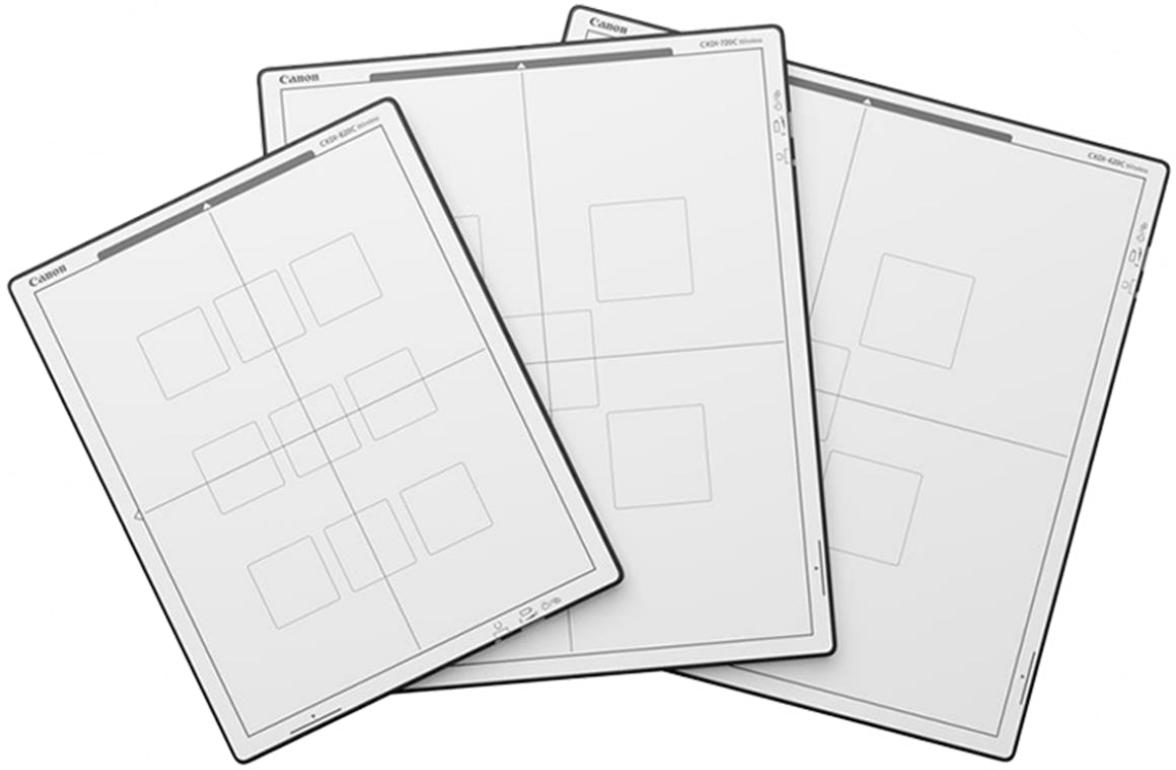
BiAA – Which parameters can be changed & how?

PARAMETERS OF INTEREST:

- AEC Cut-off dose – *How can it be adjusted?*
- Possibility to adjust the cut-off dose for an individual protocol?
- AEC Backup value – *How can the exposure be terminated if it is not reaching the selected AEC chamber?*
- Active Chambers in each protocol. – *How do you select them?*
- BiAA modes (Manual / Auto)

HOW CAN PARAMETERS BE CHANGED?

- APR Editor, protocol settings
- Drtsetting.ini-file



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Canon APR Editor: BiAA settings

Anatomical Protocols are defined in the Canon APR Editor.

Settings requied to use BiAA in a protocol:

- Technique: AEC
- ms = Used as Backup value
- Detector AEC Assist: YES

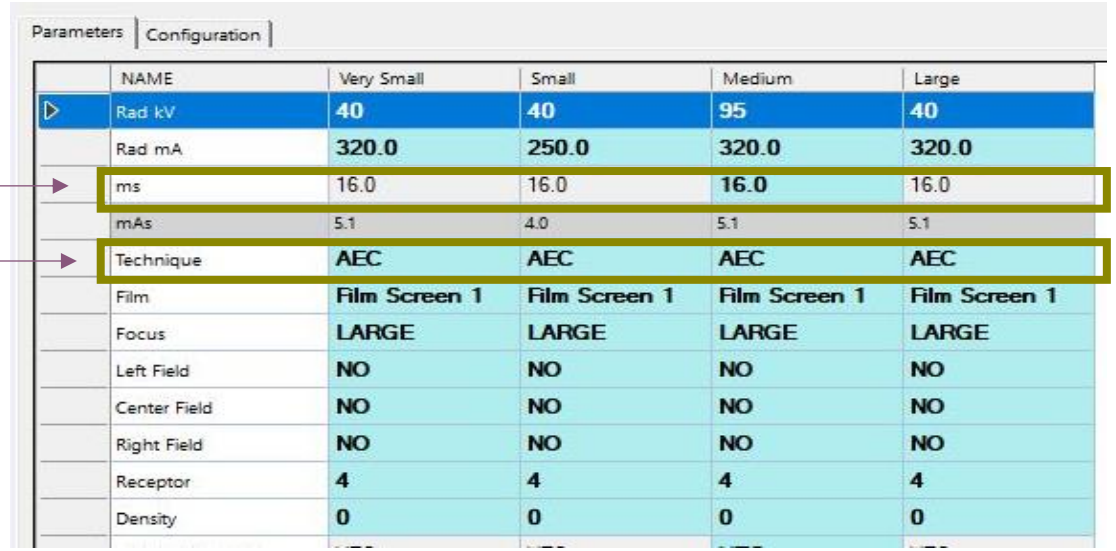
Adjustable protocol settings related to BiAA:

- Active Detector AEC
- DRT Denstity
- Detector Rotation

See next page for more information.

Used as Backup value

Technique: AEC



NAME	Very Small	Small	Medium	Large
Rad kV	40	40	95	40
Rad mA	320.0	250.0	320.0	320.0
ms	16.0	16.0	16.0	16.0
mAs	5.1	4.0	5.1	5.1
Technique	AEC	AEC	AEC	AEC
Film	Film Screen 1	Film Screen 1	Film Screen 1	Film Screen 1
Focus	LARGE	LARGE	LARGE	LARGE
Left Field	NO	NO	NO	NO
Center Field	NO	NO	NO	NO
Right Field	NO	NO	NO	NO
Receptor	4	4	4	4
Density	0	0	0	0

New parameters related to BiAA

Detector AEC Assist	YES	YES	YES	YES
Active Detector AEC	A	A	A	A
DRT Density	0	0	0	0
Detector Rotation	0 degree	0 degree	0 degree	0 degree

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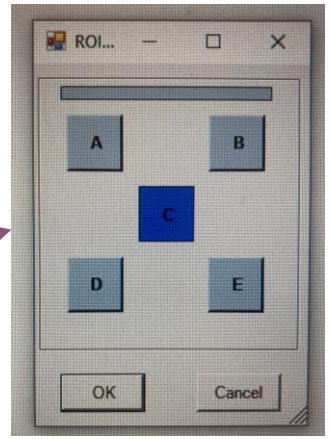
BiAA – Protocol Setup

The following parameters are recommended to use during normal operation:

Detector AEC Assist	YES
Active Detector AEC	C
DRT Density	0
Detector Rotation	0 degree

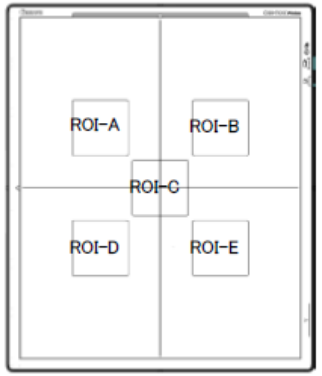
Shall be YES to activate BiAA
> Can be changed by the user

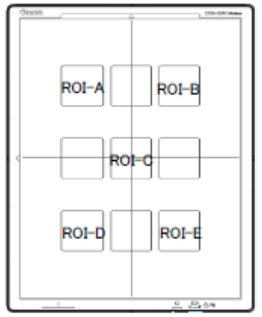
Select active chambers
> Can be changed by the user



Adjust the cut-off dose
> Impact on image noise level

BiAA mode:
Manual/0 degree or Auto Rotation link





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BiAA – Protocol Setup

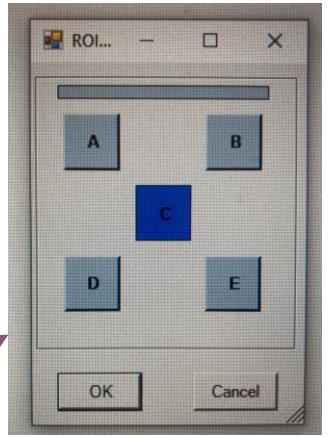
There are more parameters related to BiAA that are recommended be hidden with the Configuration Tool.

The following parameters are recommended to use during normal operation:

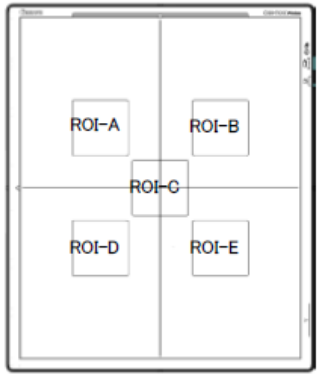
Detector AEC Assist	YES
Active Detector AEC	C
ROI Calc Type	AVG
Sensitivity	0
DRT Density	0
Max Exposure Time (ms)	1000
Base Level	0
Detector Rotation	0 degree

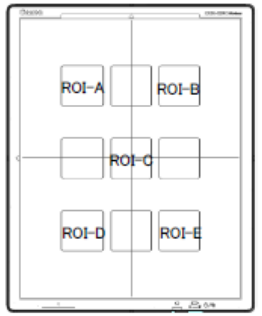
Shall be YES to activate BiAA

Select which chambers that shall be active



Adjust the cut-off dose (noise level)
Number of steps are defined in the drtsettings.ini-file.





BiAA mode: Manual/0 degree or Auto Rotation link

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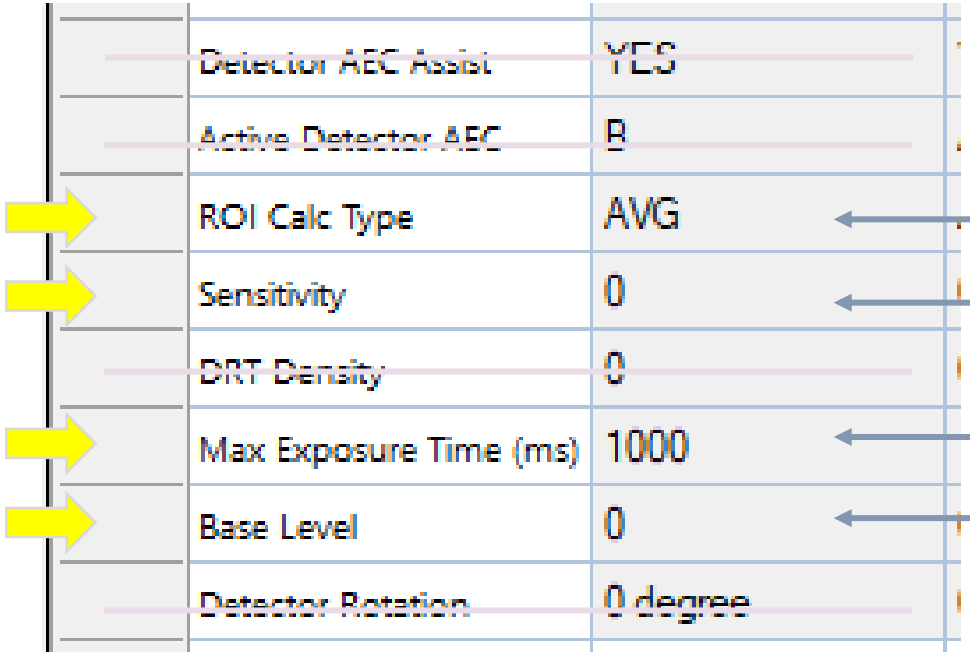
BiAA – Protocol Setup

The following parameters are recommended to hide during normal operation:

SUGGESTION TO HIDE PARAMETERS
INDICATED WITH YELLOW ARROW BELOW:



PARAMETERS CAN BE HIDDEN VIA THE CONFIGURATION TAB. *See next pages for information.*

AVG (Average), AND, OR

Sensitivity > Recommended not to change during normal operation.
Number of steps can be defined in drtsettings.ini-file.

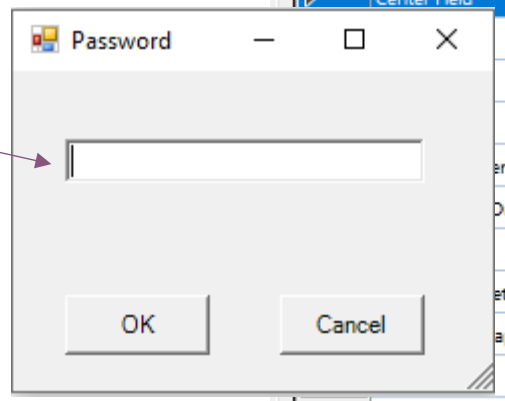
Max exposure time, detector

Parameter can be used to adjust the cut-off dose.
Base level value is defined in the drtsettings.ini-file.

ARCOMA

PROTOCOL: Configuration

- Open the Canon APR Editor
- Go to X-ray Parameter window
- Select the Configuration tab
- Password will be requested
- Add password: *Admin* to get access



X-RAY PARAMETER

Parameters | Configuration

NAME	Very Small	Small	Medium	Large
Rad kV	40	68	76	84
Rad mA	50.0	200.0	200.0	200.0
ms	10.0	80.0	80.0	80.0
mAs	0.5	16.0	16.0	16.0
Technique	MAS	MAS	MAS	MAS
Focus	SMALL	SMALL	SMALL	SMALL
Left Field	NO	NO	NO	NO
Center Field	YES	YES	YES	YES
	NO	NO	NO	NO
	2	2	2	2
	0	0	0	0
ent.	1-2-3 Portrait	1-2-3 Portrait	1-2-3 Portrait	1-2-3 Portrait
On	YES	YES	YES	YES
	0	0	0	0
et	-999999	-999999	-999999	-999999
ape	Portrait	Portrait	Portrait	Portrait
	0	0	0	0
CollimatorWidth(inch)	-1.0	-1.0	-1.0	-1.0
CollimatorHeight(inch)	-1.0	-1.0	-1.0	-1.0
CollimatorCentering	CENTER	CENTER	CENTER	CENTER
GridInfo	DISABLED	DISABLED	DISABLED	DISABLED
Detector Stand Angle	0.00	0.00	0.00	0.00

ARCOMA

Configuration, overview

a) Parameters tab
Visible for user when editing APR protocols.

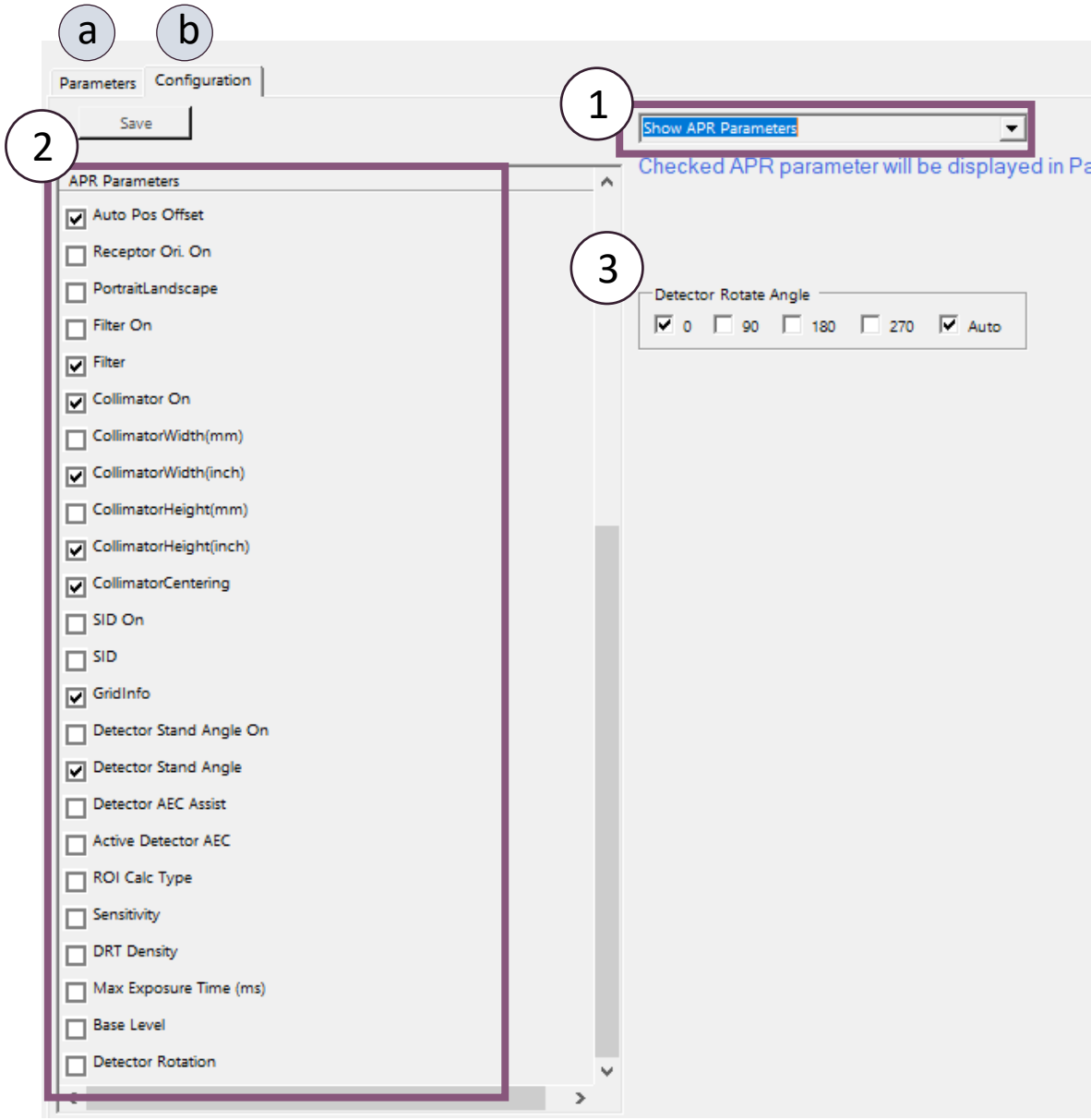
b) Configuration tab
Used by Service/Application/Super user for settings of Parameters tab.

---

1) Tools for adjusting APR Parameters on show and how to edit parameters.
a) Show APR Parameters
b) APR Parameters Editable Per Patiens Size

2) List of APR Parameters

3) Built-in-AEC Assistance parameters



ARCOMA

Configuration, Tools

Show APR Parameters

<u>Used for:</u>

Deciding which of the APR Parameters that shall be shown on the Parameters tab (a).

<u>Instruction:</u>

Select the Configuration tab (b).

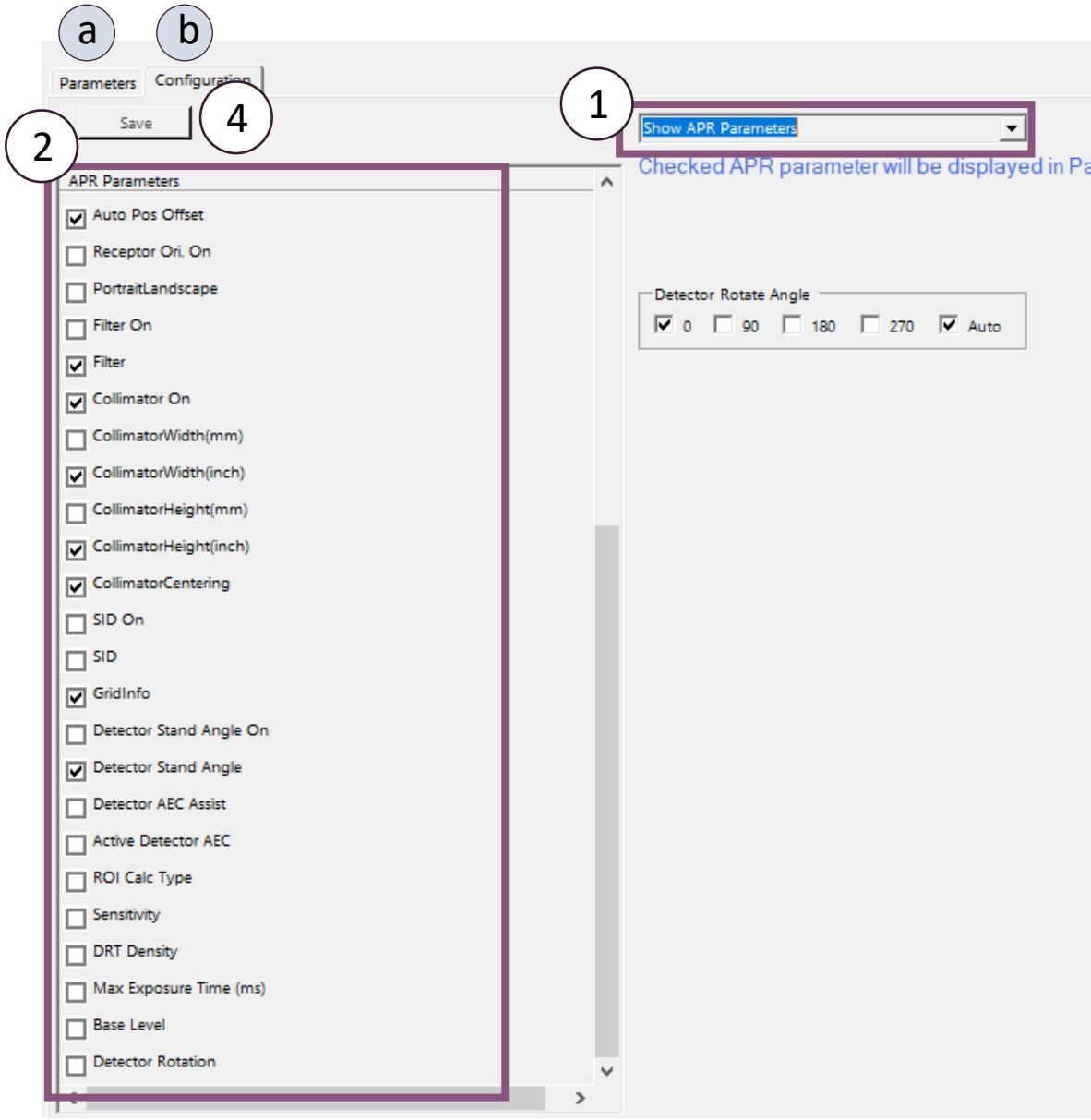
Select *Show APR Parameters* in the drop down menu (1).

Select the APR Parameters (2) to show on the Parameters tab (a).

Select by checking the box to the left of the APR Parameters (2).

Press Save button (4).

Only seleted APR Parameters will be shown in the Parameter tab.



ARCOMA

Configuration, Tools

APR Parameters Editable Per Patient Size

<u>Used for:</u>

Decides how to edit the APR Parameters on the Parameters tab. There are two alterantives:

a) Edit parameter seperately for each patient size

b) Edit the parameter for the Medium patient size and automatically apply settings for all patient sizes.

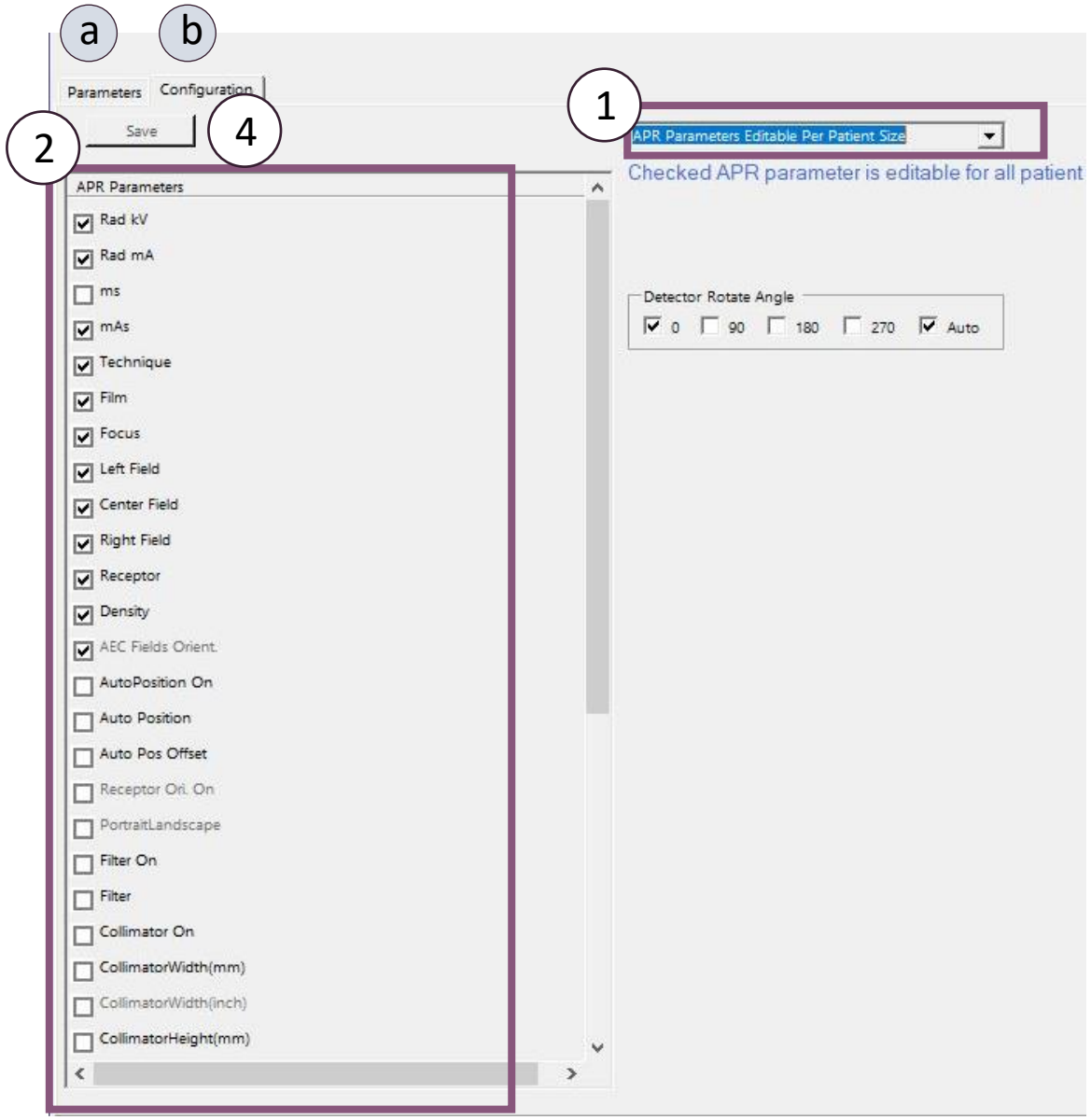
<u>Instruction:</u>

Select *APR Parameters Editable Per Patient Size* in the drop down menu (1).

Select APR Parameters that shall be editable per Patient size.

Unselected APR Parameters will be edited for the Medium Patient size and automatically applied settings for all patient sizes.

See next page for example.



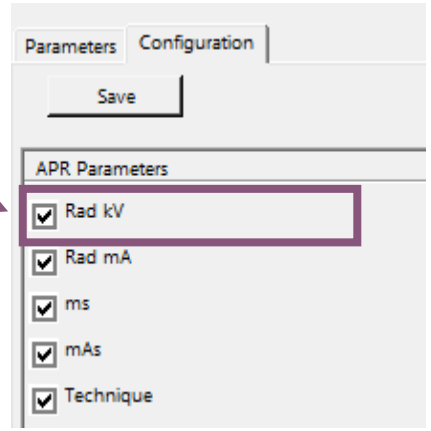
ARCOMA

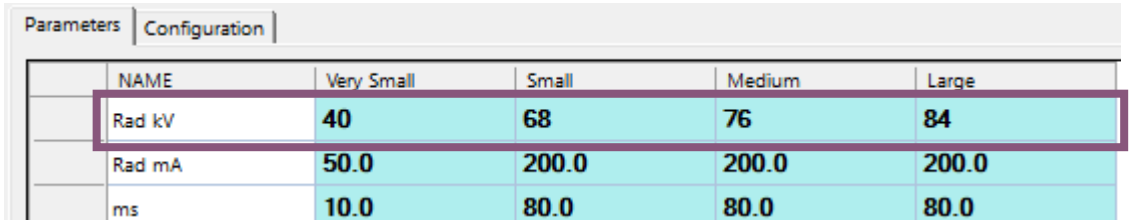
Configuration, Tools

APR Parameters Editable Per Patiens Size

kV BOX SELECTED

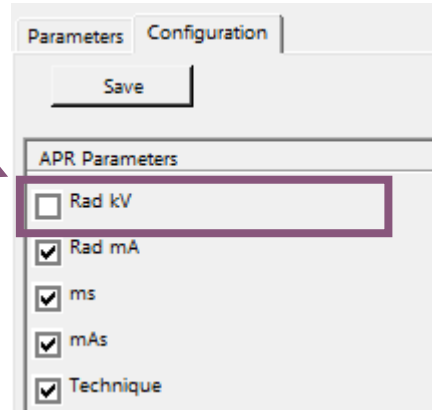
> Edit parameter seperately for each patient size

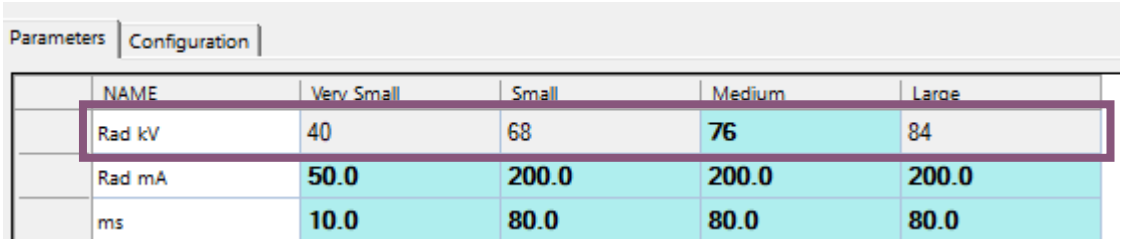




kV BOX UNSELECTED

> Edit the parameter for the Medium patient size and automatically apply settings for all patient sizes.

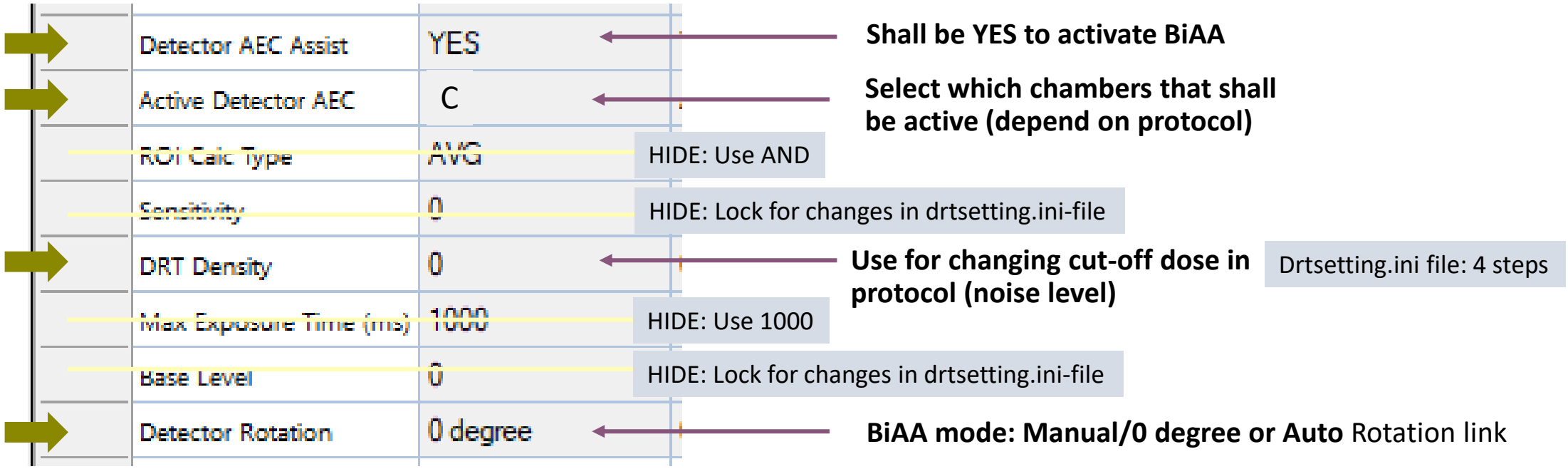




ARCOMA

SUMMARY: BiAA – Protocol Setup

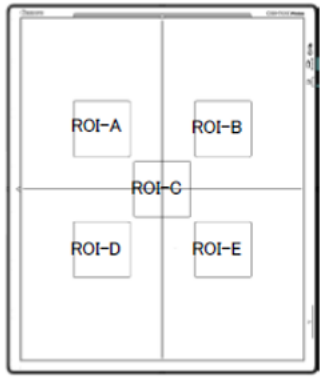
Recommended setup of parameters for normal operation:

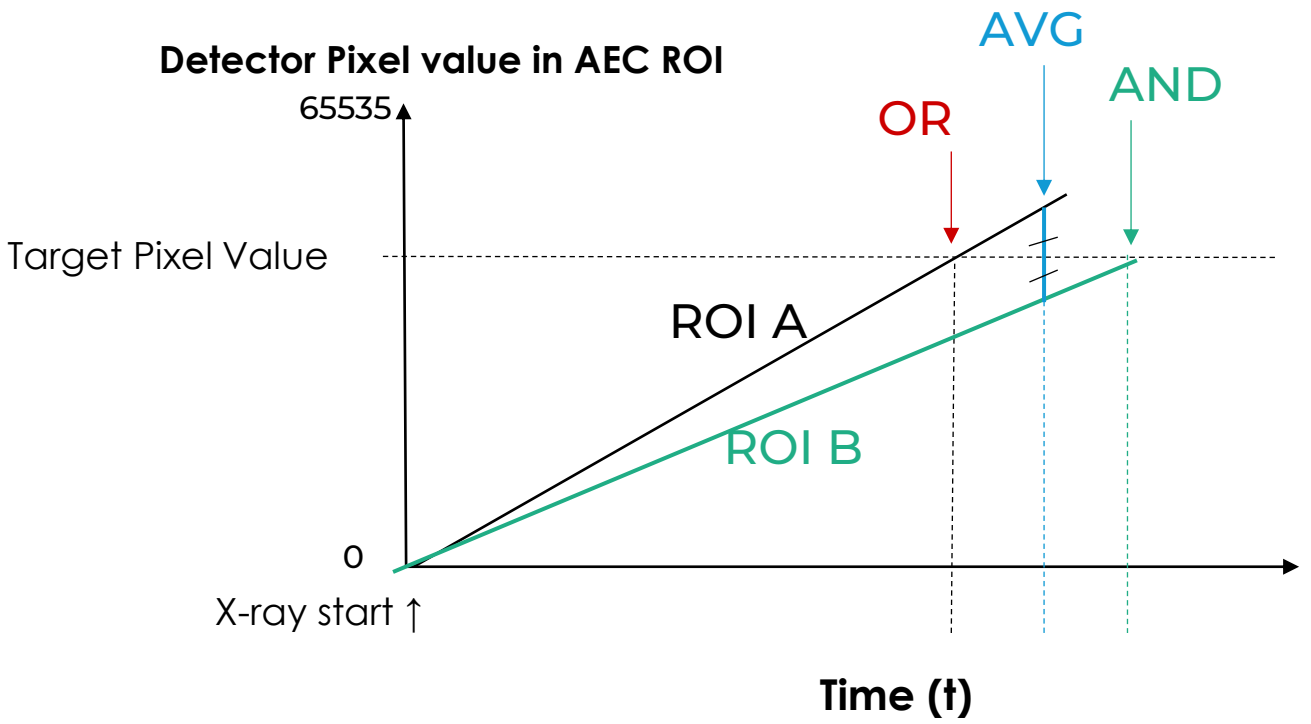


ARCOMA

BIAA PARAMETERS: ROI CALC TYPE

Definition of AND, OR, AVG in BiAA ROI:





BiAA – drtsetting.ini-file

The drtsetting.ini-file is located in the Canon CCS folder.

Parameters of interest in the drtsetting:

- **Base** > *Defines the AEC cut-off dose*
- **Early Termination Parameter**s > *Used to terminat the exposure if it is not reaching the selected AEC chamber.*
- **Density** > *Possibility to adjust the AEC cut-off dose in each Protocol.*
- **Sensitivity** > *Adjustment of the cut-off dose*

```
[COMMON]
SectionNum=2
BaseRange=0
SensRange=0
DensRange=4
EarlyTermination=1
ETThreshold=4
ETTime=20
[DRT0]
Base=1
BaseMax=100
SensMax=100
DensMax=100
[DRT1]
Base=1350
BaseMax=200
SensMax=200
DensMax=200
DirectionAuto=1
SystemDelay=1000
SystemDelay_Wireless=1200
ETStartTime=1100
ETStartTime_Wireless=1300
[LUT1]
C=01,02,03,04,05,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,
F=0004,0001,0010,0100,0040,0005,0140,0014,0011,0110,0050,0104,004
```

Range Settings

Max value Settings

Time settings

Not used
BiAA with the B1 detector (not implemented)

Do not change!
Used to define selection of AEC chambers in the Protocol editor.

ARCOMA

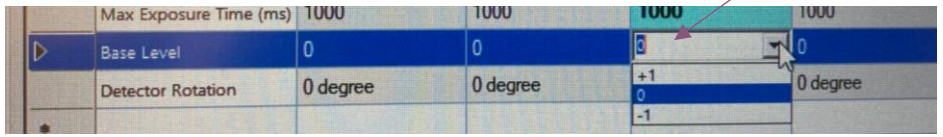
BASE

The drtsetting.ini-file is located in the Canon CCS folder.

Base

Base = 1350 => EI = 200 => results in screen dose of ~2µGy
(Due to non-ideal RQA conditions the actual measured screen dose is slightly lower)

ARP Editor, Protocol Settings



BASE
Number of steps
Value: -16 to +16
Example, Value 1: -1, 0, +1

BASE
AEC Cut-off dose/
Entrance dose

BASE
The maximum change allowed in % when Base Level is max.

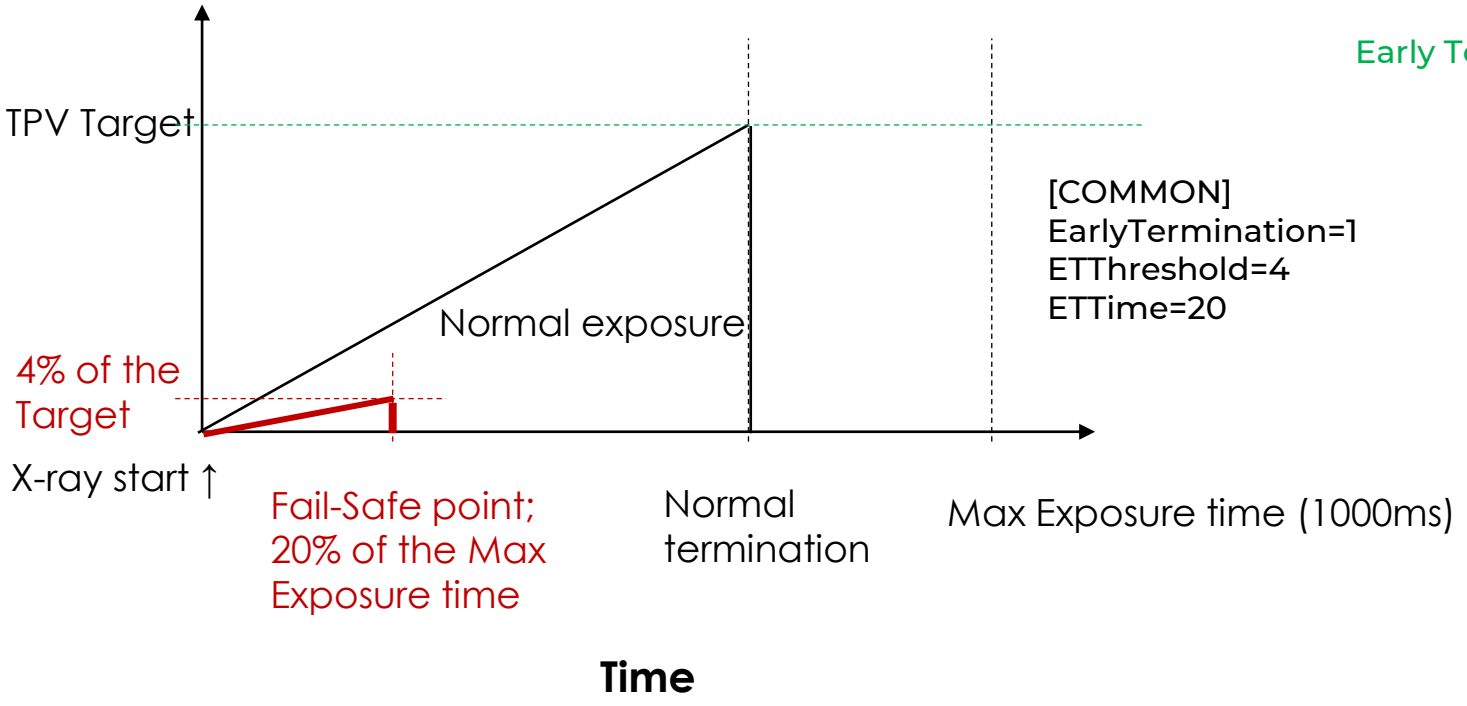
```
[COMMON]
SectionNum=2
BaseRange=1
SensRange=1
DensRange=3
EarlyTermination=1
ETThreshold=4
ETTime=20
[DRT0]
Base=1
BaseMax=100
SensMax=100
DensMax=100
[DRT1]
Base=1350
BaseMax=200
SensMax=200
DensMax=200
DirectionAuto=1
SystemDelay=1000
SystemDelay_Wireless=1200
ETStartTime=1100
ETStartTime_Wireless=1300
[LUT1]
C=01,02,03,04,05,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,2
F=0004,0001,0010,0100,0040,0005,0140,0014,0011,0110,0050,0104,0044,
```

Early Termination Base Parameters

SAFETY PARAMETERS

Early Termination in DRTSetting.ini

In case detector does not detect any incoming dose due to mispositioning, the exposure is terminated



Early Termination

[COMMON]
EarlyTermination=1
ETThreshold=4
ETTime=20

DRTSETTING.ini

File Edit View

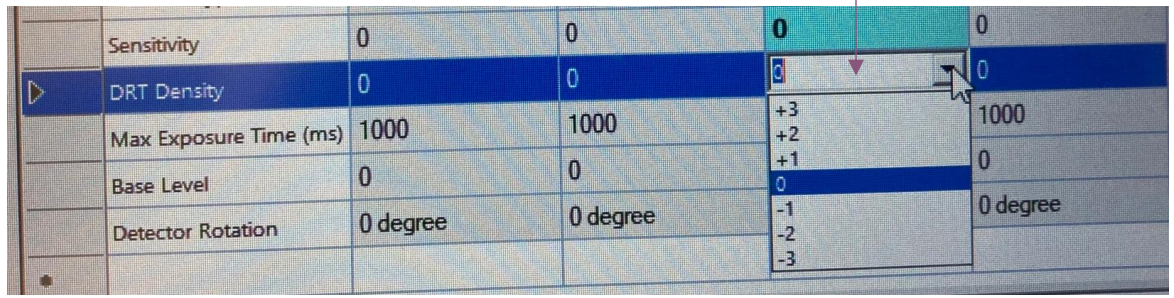
```
[COMMON]
SectionNum=2
BaseRange=1
SensRange=1
DensRange=3
EarlyTermination=1
ETThreshold=4
ETTime=20
[DRT0]
Base=1
BaseMax=100
SensMax=100
DensMax=100
[DRT1]
Base=1350
BaseMax=200
SensMax=200
DensMax=200
DirectionAuto=1
SystemDelay=1000
SystemDelay_Wireless=1200
ETStartTime=1100
ETStartTime_Wireless=1300
[LUT1]
C=01,02,03,04,05,10,11,16,19
F=0004,0001,0010,0040,0100,0005,0140,0041,0104
```

DENSITY

Density: Higher value > higher dose

Density
Number of steps
Value: -16 to +16
Example: 3
Recommended: 4

ARP Editor, Protocol Settings

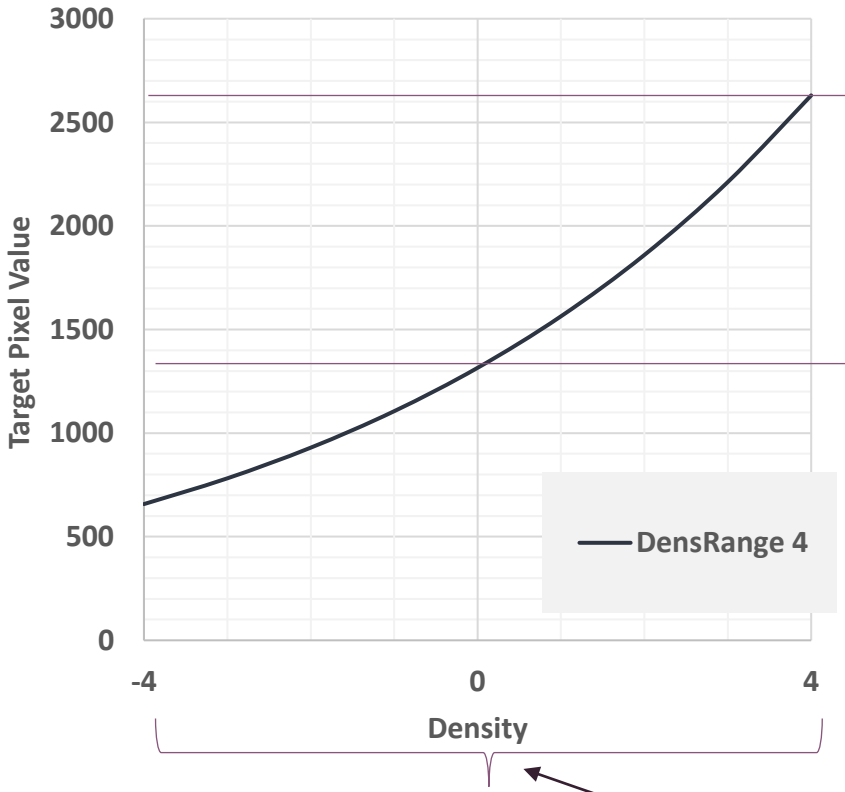


Density
The maximum change allowed in % when DRT Density is max.

```
[COMMON]
SectionNum=2
BaseRange=1
SensRange=1
DensRange=3
EarlyTermination=1
ETThreshold=4
ETTime=20
[DRT0]
Base=1
BaseMax=100
SensMax=100
DensMax=100
[DRT1]
Base=1350
BaseMax=200
SensMax=200
DensMax=200
DirectionAuto=1
SystemDelay=1000
SystemDelay_Wireless=1200
ETStartTime=1100
ETStartTime_Wireless=1300
[LUT1]
C=01,02,03,04,05,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,
F=0004,0001,0010,0100,0040,0005,0140,0014,0011,0110,0050,0104,004
```

DENSITY

Density: Higher value > higher dose



Base: 2700
+200%

Base: 1350

```
[COMMON]
SectionNum=2
BaseRange=0
SensRange=0
DensRange=4
EarlyTermination=1
ETThreshold=4
ETTime=20
[DRT0]
Base=1
BaseMax=100
SensMax=100
DensMax=100
[DRT1]
Base=1350
BaseMax=200
SensMax=200
DensMax=200
DirectionAuto=1
SystemDelay=1000
SystemDelay_Wireless=1200
ETStartTime=1100
ETStartTime_Wireless=1300
[LUT1]
C=01,02,03,04,05,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26
F=0004,0001,0010,0100,0040,0005,0140,0014,0011,0110,0050,0104,0044,
```

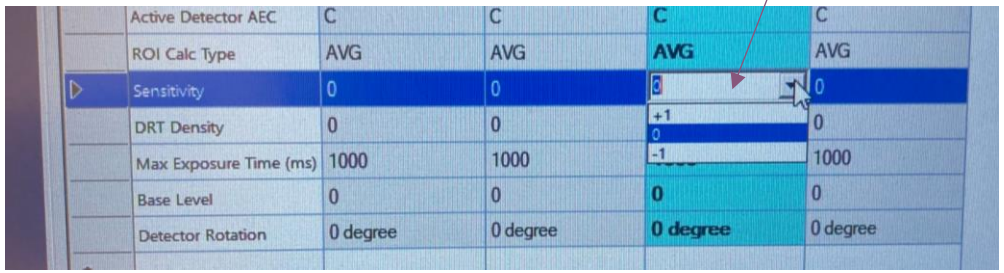
ARCOMA

SENSITIVITY

Sensitivity: Higher value > lower dose

Sensitivity
Number of steps
Value: -16 to +16
Example, Value 1: -1, 0, +1
Recommended: 0

ARP Editor, Protocol Settings

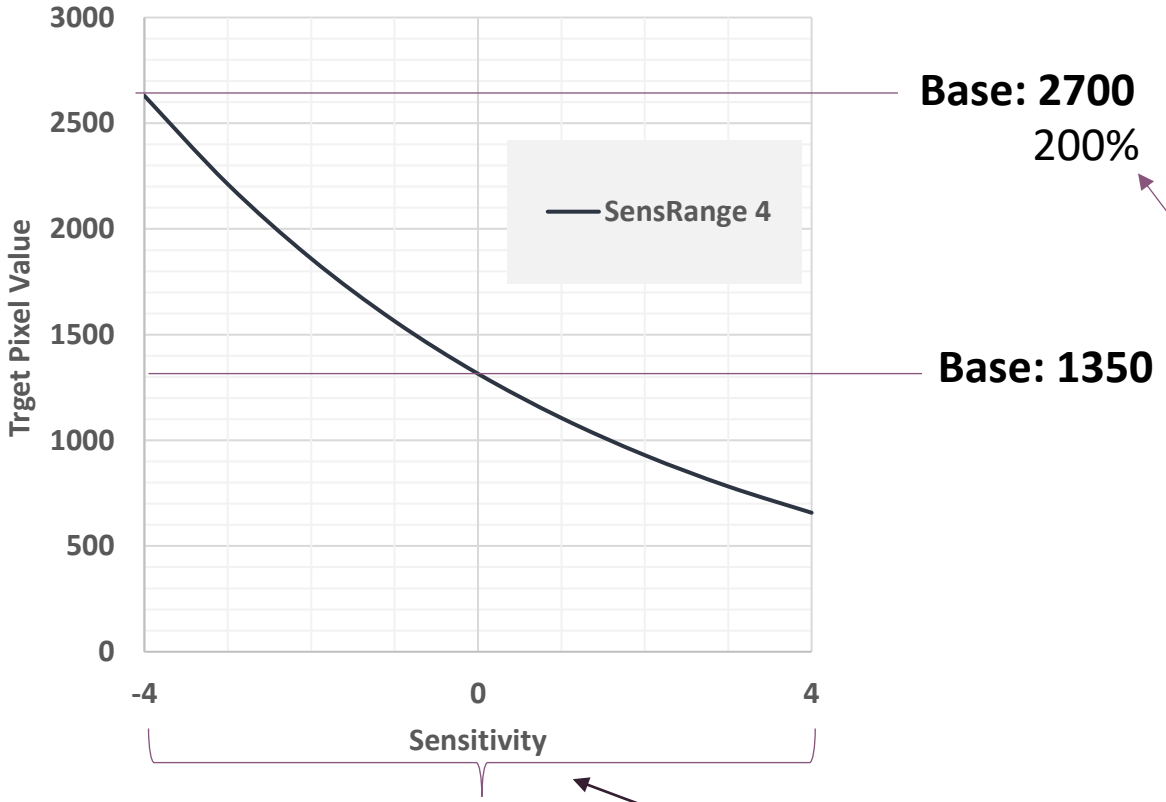


Sensitivity
The maximum change allowed in % when DRT Density is max.

```
[COMMON]
SectionNum=2
BaseRange=1
SensRange=1
DensRange=3
EarlyTermination=1
ETThreshold=4
ETTime=20
[DRT0]
Base=1
BaseMax=100
SensMax=100
DensMax=100
[DRT1]
Base=1350
BaseMax=200
SensMax=200
DensMax=200
DirectionAuto=1
SystemDelay=1000
SystemDelay_Wireless=1200
ETStartTime=1100
ETStartTime_Wireless=1300
[LUT1]
C=01,02,03,04,05,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,2
F=0004,0001,0010,0100,0040,0005,0140,0014,0011,0110,0050,0104,0044
```

SENSITIVITY

Sensitivity: Higher value > lower dose



Base: 2700
200%

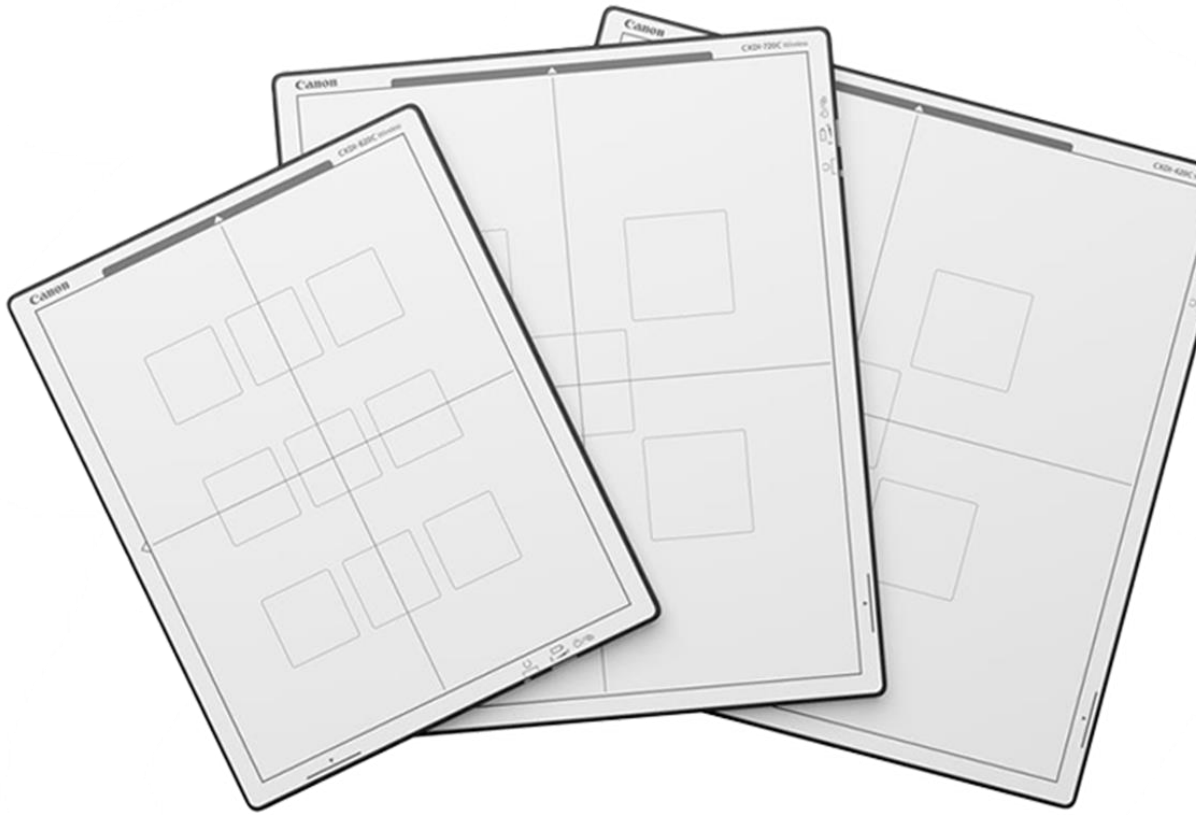
Base: 1350

```
[COMMON]
SectionNum=2
BaseRange=1
SensRange=4
DensRange=4
EarlyTermination=1
ETThreshold=4
ETTime=20
[DRT0]
Base=1
BaseMax=100
SensMax=100
DensMax=100
[DRT1]
Base=1350
BaseMax=200
SensMax=200
DensMax=200
DirectionAuto=1
SystemDelay=1000
SystemDelay_Wireless=1200
ETStartTime=1100
ETStartTime_Wireless=1300
[LUT1]
C=01,02,03,04,05,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,
F=0004,0001,0010,0100,0040,0005,0140,0014,0011,0110,0050,0104,004
```

BiAA – Which parameters can be changed & how?

PARAMETERS OF INTEREST:

- AEC Cut-off dose – *How can it be adjusted?*
  > By changing the Base in the drtsetting.ini-file. ✓
- Possibility to adjust the cut-off dose for an individual protocol?
  > Yes, by using DRT Density. ✓
- AEC Backup value – *How can the exposure be terminated if it is not reaching the selected AEC chamber?*
  > Early Termination setting in drtsetting.ini-file. ✓
- Active Chambers in each protocol. – *How do you select them?*
  > Active Detector AEC parameter in the Protocol is used. ✓
- BiAA modes (Manual / Auto)
  > Change in Protocol setting and during the examination. ✓



HOW CAN PARAMETERS BE CHANGED?

- APR Editor, protocol settings
- Drtsetting.ini-file

ARCOMA

SUMMARY: BiAA – Protocol settings

Anatomical Protocols are defined in the Canon APR Editor.

Parameters related to BiAA is highlighted.

Used as Backup value

Technique shall be AEC

New parameters related to BiAA

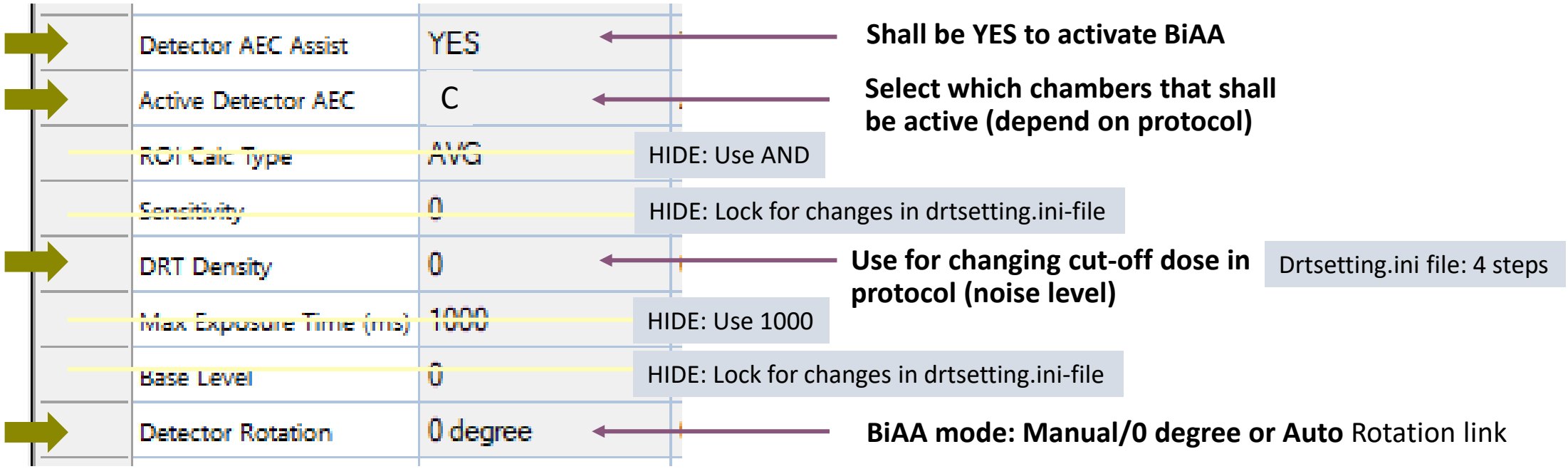
Parameters | Configuration

NAME	Very Small	Small	Medium	Large
Rad kV	40	40	95	40
Rad mA	320.0	250.0	320.0	320.0
ms	16.0	16.0	16.0	16.0
mAs	5.1	4.0	5.1	5.1
Technique	AEC	AEC	AEC	AEC
Film	Film Screen 1	Film Screen 1	Film Screen 1	Film Screen 1
Focus	LARGE	LARGE	LARGE	LARGE
Left Field	NO	NO	NO	NO
Center Field	NO	NO	NO	NO
Right Field	NO	NO	NO	NO
Receptor	4	4	4	4
Density	0	0	0	0
AutoPosition On	YES	YES	YES	YES
Auto Position	0	0	0	0
Auto Pos Offset	-999999	-999999	-999999	-999999
Filter On	NO	NO	NO	NO
Filter	0	0	0	0
Collimator On	YES	YES	YES	YES
CollimatorWidth(mm)	300.0	300.0	300.0	300.0
CollimatorHeight(mm)	300.0	300.0	300.0	300.0
CollimatorCentering	N/A	N/A	N/A	N/A
GridInfo	No Grid	No Grid	No Grid	No Grid
Detector Stand Angle	0.00	0.00	0.00	0.00
Detector AEC Assist	YES	YES	YES	YES
Active Detector AEC	C	C	C	C
ROI Calc Type	AVG	AVG	AVG	AVG
Sensitivity	0	0	0	0
DRT Density	0	0	0	0
Max Exposure Time (ms)	1000	1000	1000	1000
Base Level	0	0	0	0
Detector Rotation	0 degree	0 degree	0 degree	0 degree

ARCOMA

SUMMARY: BiAA – Protocol Setup

Recommended setup of parameters for normal operation:



ARCOMA

Part III (Service)

Detailed setup

Installation - setup

Steps for standard AEC setup:

- Balance between chambers > *No need with BiAA*
- Define cut-off dose > *See following page for description*
- kV compensation > *Can be adjusted by using Sensitivity*

Define AEC cut-off dose

Check the BiAA cut-off dose:

1) Select a BiAA protocol and activate the center chamber (C).
2) Position the X-ray tube above the detector (SID 115 cm) and adjust the collimator light to cover the detector area.
3) Make an exposure with the following parameters
   - RQA5: 70 kV, 21 mmAl added filtration
4) Note the EI value received (shown in Canon, exposed image).
   Example of EI-values:

   EI : 200 = 2 µGy cut-off dose
   EI : 180 = 1,8 µGy cut-off dose

   EI=100 x Base / Sfpd, Sfpd = 678 LSB/µGy at RQA5

Adjust the BiAA cut-off dose:

1) Open the drtsetting.ini-file in the Canon CCS folder.
2) Adjust the Base value until correct cut-off dose received.

   Base = 1350 > EI = 200 > cut-off dose ~2µGy
   Base = 2115 > EI ~ 312 > cut-off dose ~>3µGy
   (Due to non-ideal RQA conditions the actual measured screen dose is slightly lower)

DRTSETTING.ini-file

The drtsetting.ini-file shall be saved to Canon CCS folder.


```
[COMMON]
SectionNum=2
BaseRange=0
SensRange=0
DensRange=4
EarlyTermination=1
ETThreshold=4
ETTime=20
[DRT0]
Base=1
BaseMax=100
SensMax=100
DensMax=100
[DRT1]
Base=1350
BaseMax=200
SensMax=200
DensMax=200
DirectionAuto=1
SystemDelay=1000
SystemDelay_Wireless=1200
ETStartTime=1100
ETStartTime_Wireless=1300
[LUT1]
C=01,02,03,04,05,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,
F=0004,0001,0010,0100,0040,0005,0140,0014,0011,0110,0050,0104,004
```

Range Settings

Max value Settings

Time settings

Not used

BiAA with the B1 detector (not implemented)

- **Base** > *Defines the AEC cut-off dose*

Do not change!

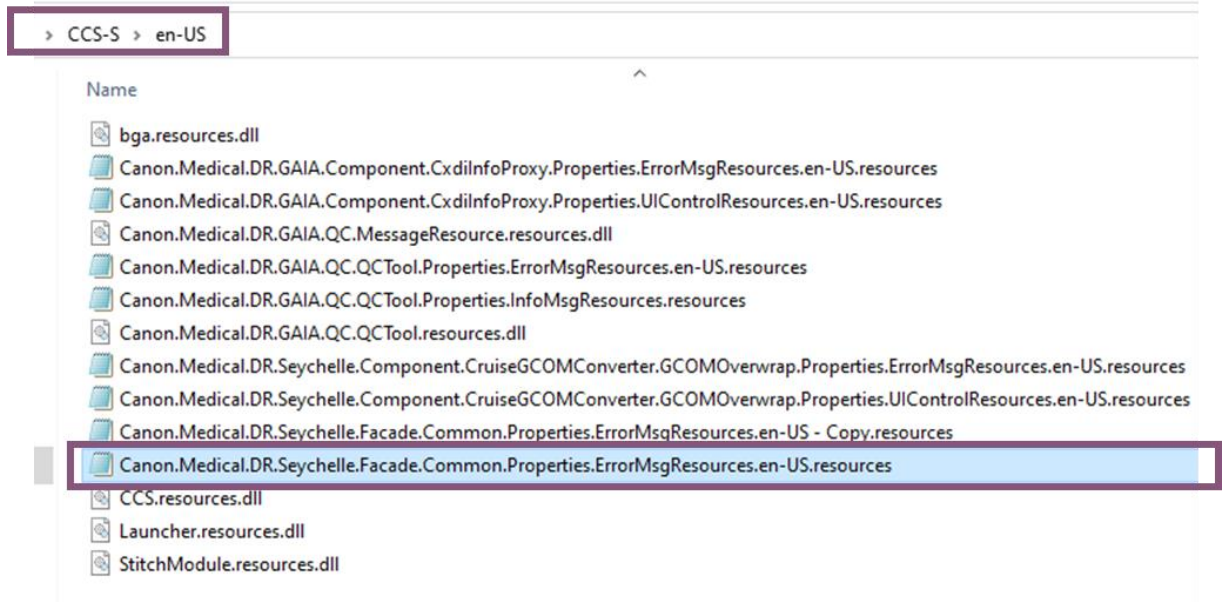
Used to define selection of AEC chambers in the Protocol editor.

ARCOMA

Add and update files in CCS-S folder

Add / Update the follwing files in the CCS-S folder:

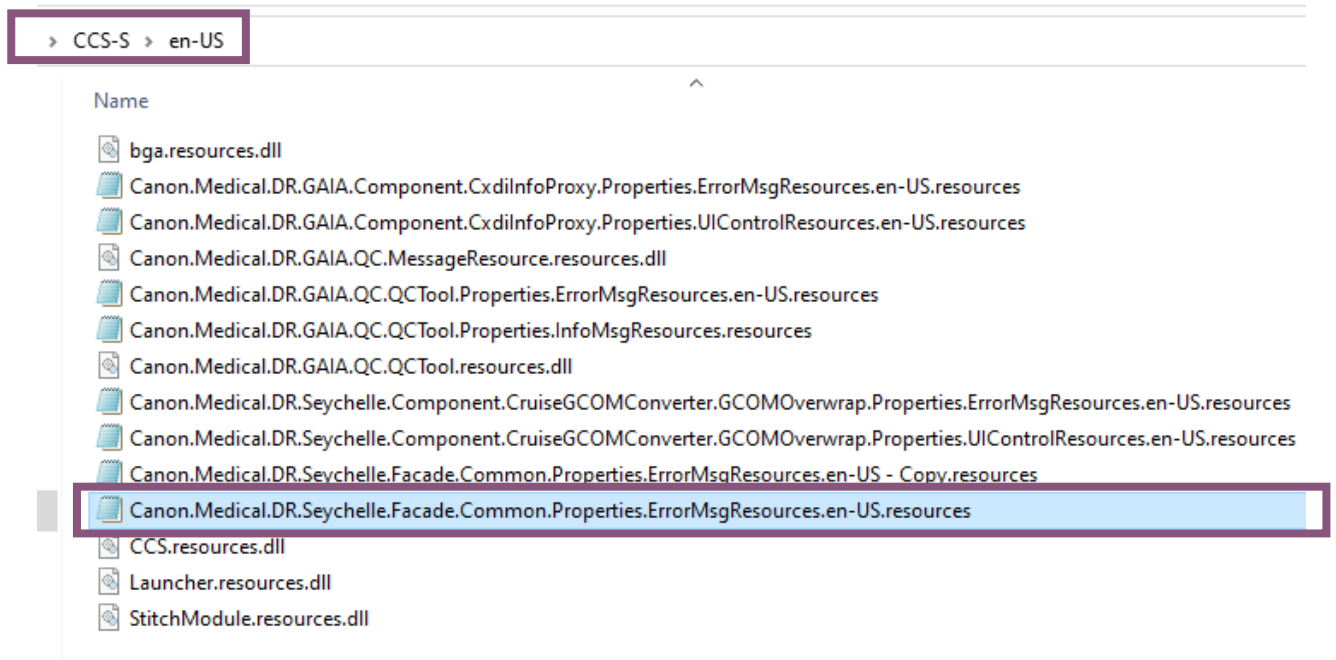
- DRTSETTING.ini-file
- UsePixelValueAlertWithBiAA.xml
- UseWifiAlertWithBiAA.xml
- Exchange the following file in the CCS-S/en-US folder: *Canon.Medical.DR.Seychelle.Facade.Common.Properties.ErrorMasgResources.en-US.resources*



ARCOMA

Update BiAA Error Message

Update BiAA Error Message by exchangeing the file according to below. The file will be provided in the Upgrade package by Arcoma.



SITUATION when ERROR Message appears:
Detector angulation criteria for BiAA Auto not fulfilled
Detector angulation: More than 30 degrees.

STANDARD ERROR MESSAGE:

Exposure is not possible because the direction of the detector cannot be detected. **Stand the detector more vertically and retry the exposure.**

NEW ERROR MESSAGE:

Exposure is not possible because the direction of the detector cannot be detected. **Switch BiAA Auto rotation off.**

ARCOMA

CXDINE_OverwrapLog and BiAA

Search for BiAA in the CXDINE_OverwrapLog file.

The parameter EnableBiAA5FieldAEC value

Shall be: **true**

if

EnableBiAA5FieldAEC value””**false**””

Check that 5-Field BiAA is selected in GenConfig.

CXDINE_OverwrapLog_2024_09_11_1012.txt - Notepad

File Edit Format View Help

```
"Log" Information 0 "[20240911 10:12:49.578]        IconPath=""C:\CXDI_NE_Overwrap\receptor_icons\receptor_cas2.png"" />"
"Log" Information 0 "[20240911 10:12:49.578]    <ReceptorSettings6 Enabled=""false"" IsNonDR=""false"" GridDetection=""0"""
"Log" Information 0 "[20240911 10:12:49.578]        IconPath="""" />"
"Log" Information 0 "[20240911 10:12:49.578]    <appSettings>"
"Log" Information 0 "[20240911 10:12:49.578]        <add key=""TimeoutReplyToCanon"" value=""4"" />"
"Log" Information 0 "[20240911 10:12:49.578]        <add key=""CanonPCCheckInterval"" value=""5"" />"
"Log" Information 0 "[20240911 10:12:49.578]        <add key=""TimeoutReplyToTable"" value=""4"" />"
"Log" Information 0 "[20240911 10:12:49.578]        <add key=""TimeoutWatchDogRespFromTable"" value=""4"" />"
"Log" Information 0 "[20240911 10:12:49.578]        <add key=""WatchDogIntervalTable"" value=""2"" />"
"Log" Information 0 "[20240911 10:12:49.578]        <add key=""PreviewImageRetriesIntervalMS"" value=""334"" />"
"Log" Information 0 "[20240911 10:12:49.578]        <add key=""Language"" value=""ENGLISH"" />"
"Log" Information 0 "[20240911 10:12:49.578]        <add key=""ClientSettingsProvider.ServiceUri"" value="""" />"
"Log" Information 0 "[20240911 10:12:49.578]        <add key=""GenType"" value=""CMP200"" />"
"Log" Information 0 "[20240911 10:12:49.578]        <add key=""GenCOMPort"" value=""COM1"" />"
"Log" Information 0 "[20240911 10:12:49.578]        <add key=""LoggingLevel"" value=""Verbose"" />"
"Log" Information 0 "[20240911 10:12:49.578]        <add key=""DAPunits"" value=""0"" />"
"Log" Information 0 "[20240911 10:12:49.578]        <add key=""ShowSaveProtocolBtn"" value=""false"" />"
"Log" Information 0 "[20240911 10:12:49.578]        <add key=""EnableDRReceptorBtns"" value=""true"" />"
"Log" Information 0 "[20240911 10:12:49.578]        <add key=""OwnIP"" value=""192.168.0.3"" />"
"Log" Information 0 "[20240911 10:12:49.578]        <add key=""TargetIP"" value=""192.168.0.3"" />"
"Log" Information 0 "[20240911 10:12:49.578]        <add key=""TargetIPTable"" value=""192.168.0.1"" />"
"Log" Information 0 "[20240911 10:12:49.578]        <add key=""ConnectPort"" value=""30311"" />"
"Log" Information 0 "[20240911 10:12:49.578]        <add key=""ConnectPortTable"" value=""50511"" />"
"Log" Information 0 "[20240911 10:12:49.578]        <add key=""ListenPort"" value=""30111"" />"
"Log" Information 0 "[20240911 10:12:49.578]        <add key=""ListenPortTable"" value=""50111"" />"
"Log" Information 0 "[20240911 10:12:49.579]        <add key=""TimeoutRespFromCanon"" value=""300"" />"
"Log" Information 0 "[20240911 10:12:49.579]        <add key=""TimeoutRespFromTable"" value=""20"" />"
"Log" Information 0 "[20240911 10:12:49.579]        <add key=""EnableAutoPos"" value=""true"" />"
"Log" Information 0 "[20240911 10:12:49.579]        <add key=""EnableTomo"" value=""false"" />"
"Log" Information 0 "[20240911 10:12:49.579]        <add key=""EnableReceptorOrient"" value=""true"" />"
"Log" Information 0 "[20240911 10:12:49.579]        <add key=""EnableBiAA5FieldAEC"" value=""false"" />"
"Log" Information 0 "[20240911 10:12:49.579]        <add key=""EnableBiAA5Field"" value=""true"" />"
"Log" Information 0 "[20240911 10:12:49.579]        <add key=""EnableCollimator"" value=""true"" />"
"Log" Information 0 "[20240911 10:12:49.579]        <add key=""ExcludeCollimatorFromAPRChk"" value=""true"" />"
"Log" Information 0 "[20240911 10:12:49.579]        <add key=""ExcludeAllTableParamsFromAPRChk"" value=""false"" />"
"Log" Information 0 "[20240911 10:12:49.579]        <add key=""DiscardTableCmdAtNewProtocol"" value=""false"" />"
"Log" Information 0 "[20240911 10:12:49.579]        <add key=""EnableFilter"" value=""true"" />"
```

ARCOMA

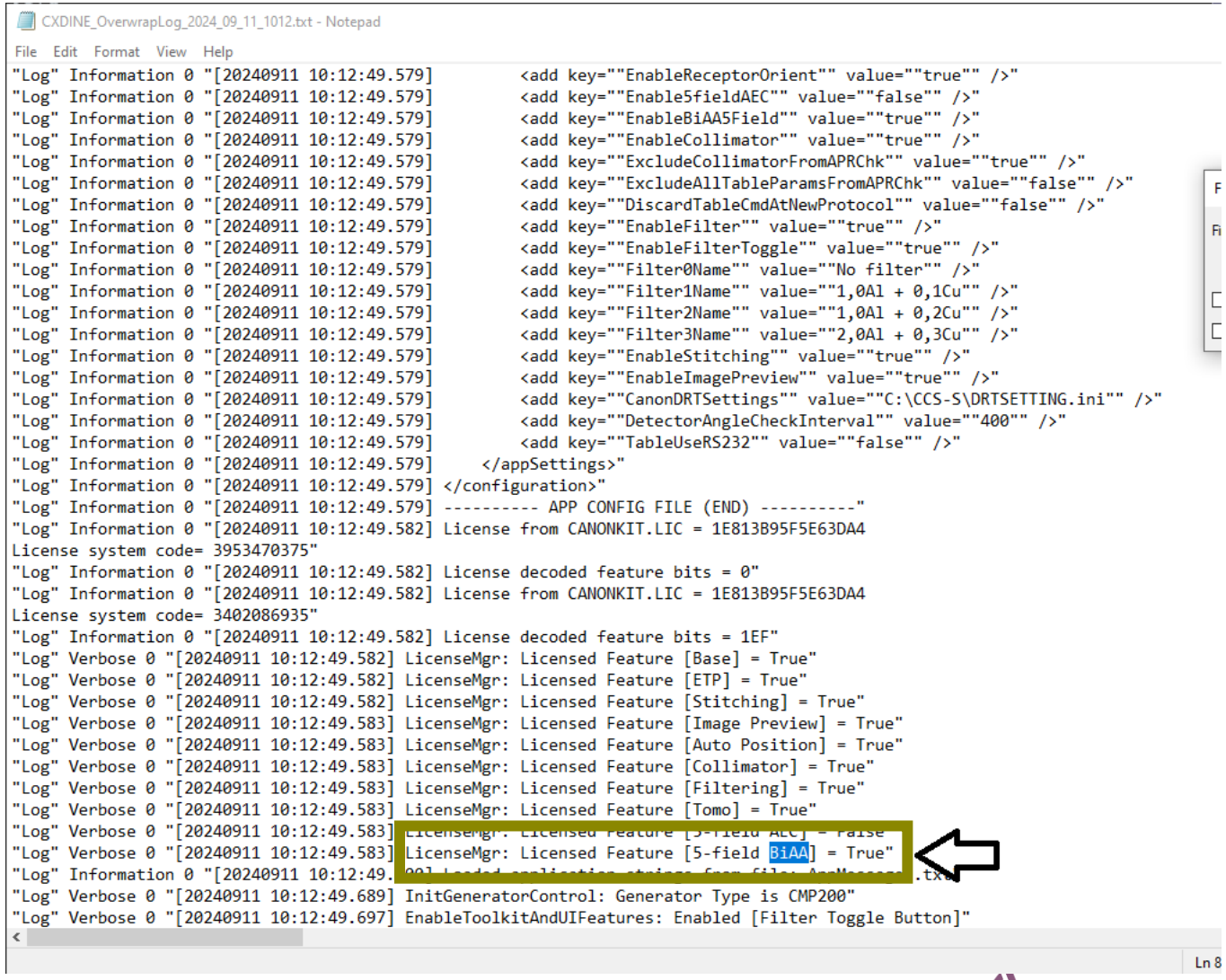
CXDINE_OverwrapLog and BiAA

When correct License key for BiAA has been entered (in GenWare) this is reflected also in the CXDINE_OverwrapLog file.

Search for BiAA in the file.

LicenseMgr: Licensed Feature [5-field BiAA] = **True**”

If the value is false, check the that the CANONKIT.LIC file and License Key has been implemented.



ARCOMA

Bart van Ginkel,
Canon Medical Components Europe

BiAA Parameters: In-depth

BIAA PARAMETERS IN DRTSETTING

BIAA PARAMETERS

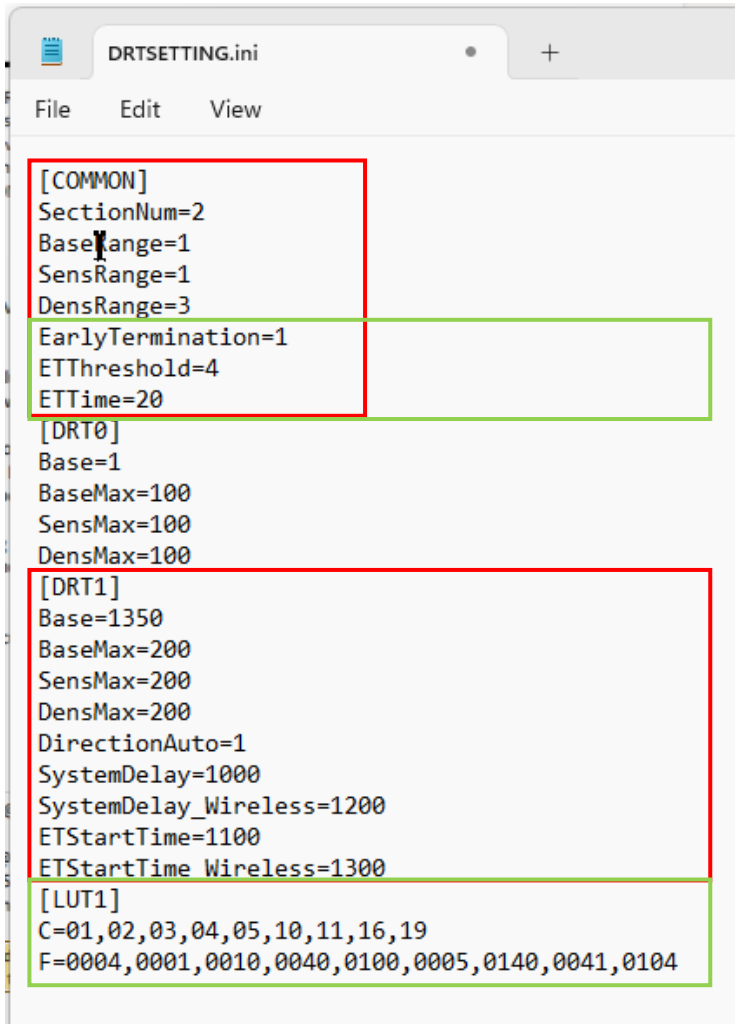
PARAMETERS IN DRTSETTING.INI

-Settings from DRTSetting.ini file located in the Canon CCS folder

-(DRT1 section is meant for the static fpd's supporting BiAA.

Early Termination only in Generator Control Mode

[LUT1] to match the generator ROI selection with the FPD ROI Selection (don't alter!)

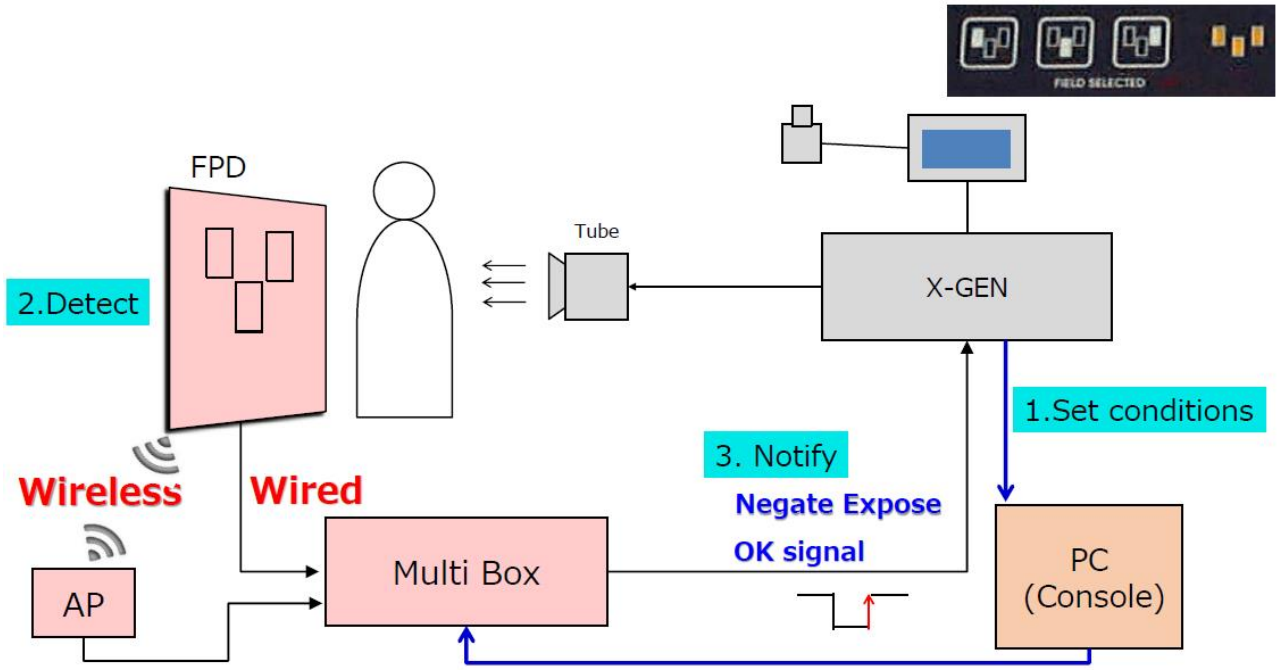


BIAA PARAMETERS

PARAMETERS IN DRTSETTING.INI

Overall System delay values in (µs), defined by system integrator.

- SystemDelay
- SystemDelay_Wireless
- ETStartTime
- ETStartTime_Wireless



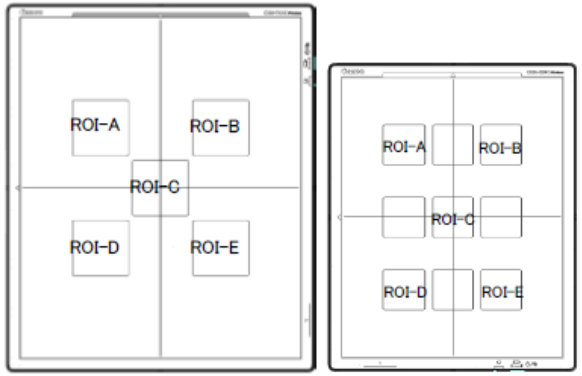
DRTSETTING.ini

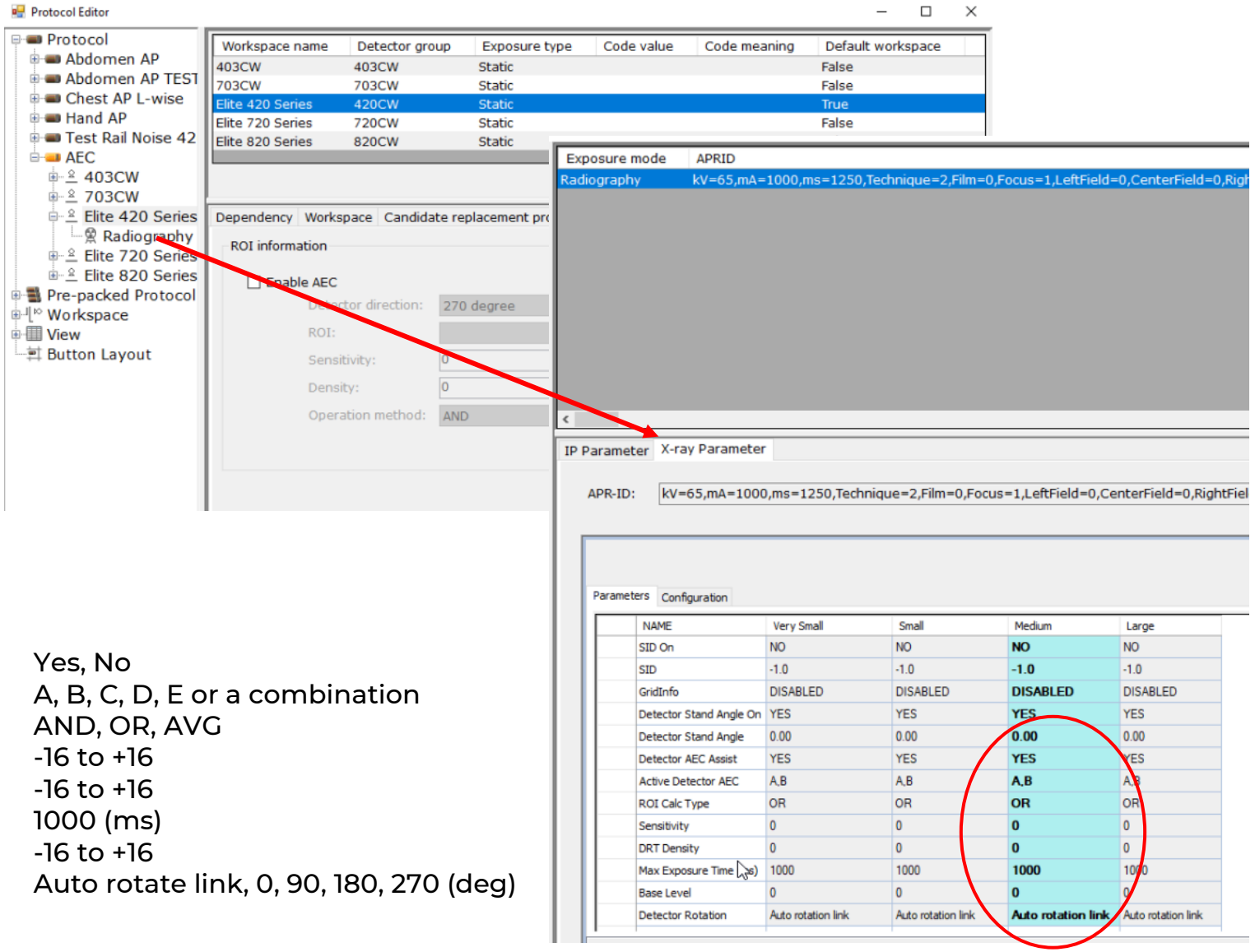
File Edit View

```
[COMMON]
SectionNum=2
BaseRange=1
SensRange=1
DensRange=3
EarlyTermination=1
ETThreshold=4
ETTime=20
[DRT0]
Base=1
BaseMax=100
SensMax=100
DensMax=100
[DRT1]
Base=1350
BaseMax=200
SensMax=200
DensMax=200
DirectionAuto=1
SystemDelay=1000
SystemDelay_Wireless=1200
ETStartTime=1100
ETStartTime_Wireless=1300
[LUT1]
C=01,02,03,04,05,10,11,16,19
F=0004,0001,0010,0040,0100,0005,0140,0041,0104
```

BIAA PARAMETERS

PARAMETERS IN PROTOCOL EDITOR





Detector AEC Assist:	Yes, No
Active Detector AEC:	A, B, C, D, E or a combination
ROI Calc type:	AND, OR, AVG
Sensitivity:	-16 to +16
DRT Density:	-16 to +16
Max Exposure Time:	1000 (ms)
Base Level:	-16 to +16
Detector Rotation:	Auto rotate link, 0, 90, 180, 270 (deg)

BIAA PARAMETERS

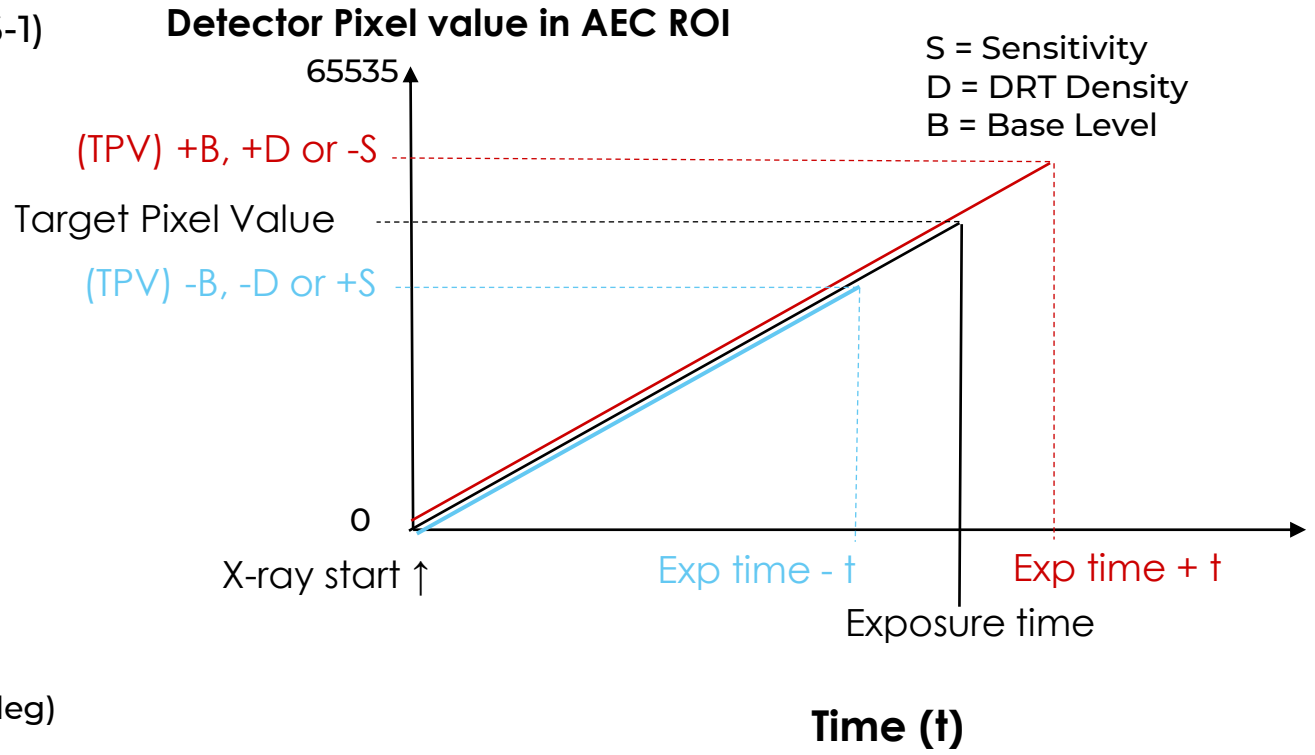
DEFINTIONS

BIAA PARAMETERS

Definition of Target Pixel Value:

TPV is an internal (pixel) value used by the FPD used to trigger the BiAA exposure stop and is directly related to the FPD pixel value = received screen dose.

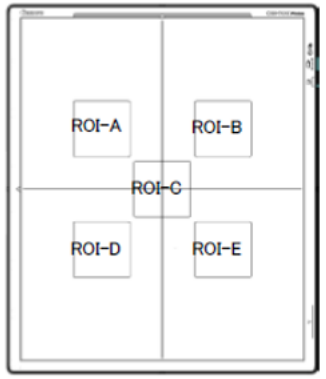
Detector acquires with a bit depth of 16 bit.
This means pixel values from 0 to max 65535 (2^16-1)

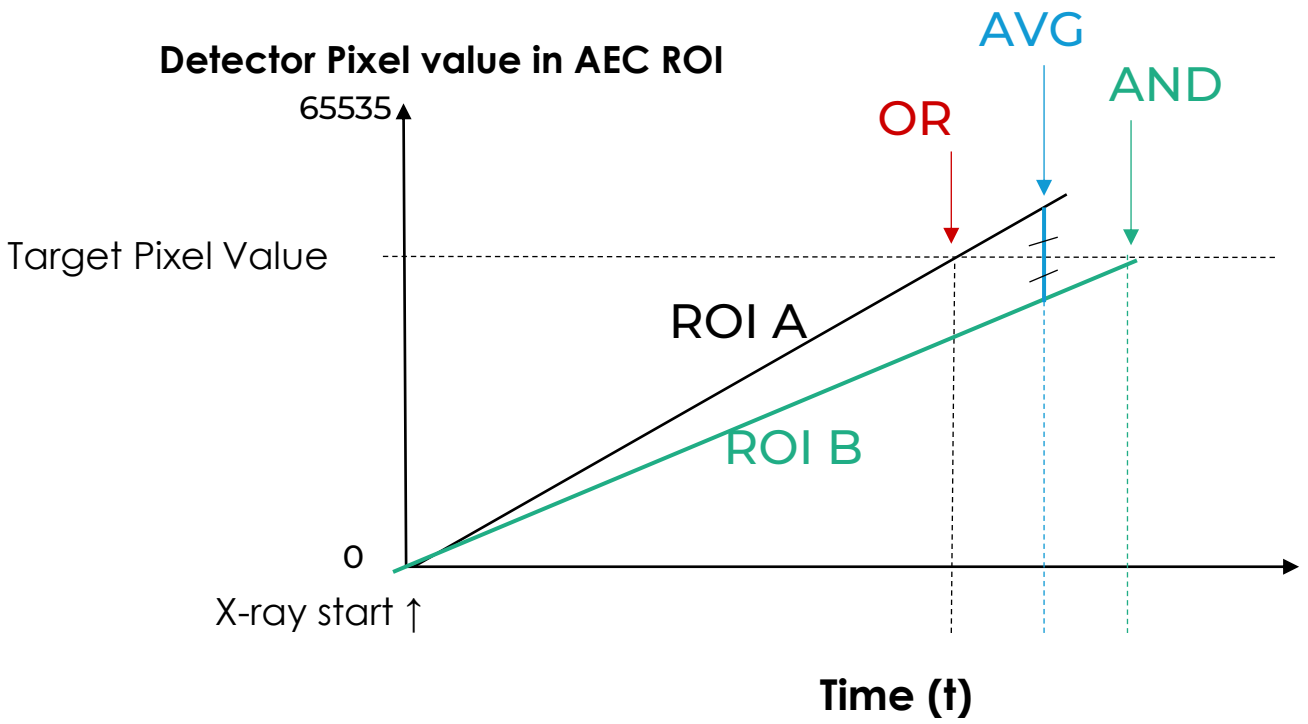


Detector AEC Assist:	Yes, No
Active Detector AEC:	A, B, C, D, E or a combination
ROI Calc type:	AND, OR, AVG
Sensitivity:	-16 to +16
DRT Density:	-16 to +16
Max Exposure Time:	1000 (ms)
Base Level:	-16 to +16
Detector Rotation:	Auto rotate link, 0, 90, 180, 270 (deg)

BIAA PARAMETERS

Definition of AND, OR, AVG in BiAA ROI:





Detector AEC Assist:	Yes, No
Active Detector AEC:	A, B, C, D, E or a combination
ROI Calc type:	AND, OR, AVG
Sensitivity:	-16 to +16
DRT Density:	-16 to +16
Max Exposure Time:	1000 (ms)
Base Level:	-16 to +16
Detector Rotation:	Auto rotate link, 0, 90, 180, 270 (deg)

BIAA PARAMETERS

ADJUSTING
TARGET DOSE (BASE), DENSITY AND SENSITIVITY

BIAA PARAMETERS

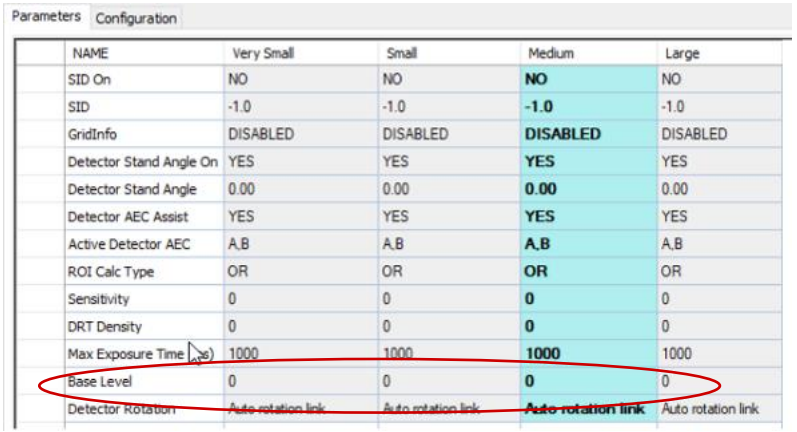
BASE

-Settings from DRTSetting.ini file located in the Canon CCS folder

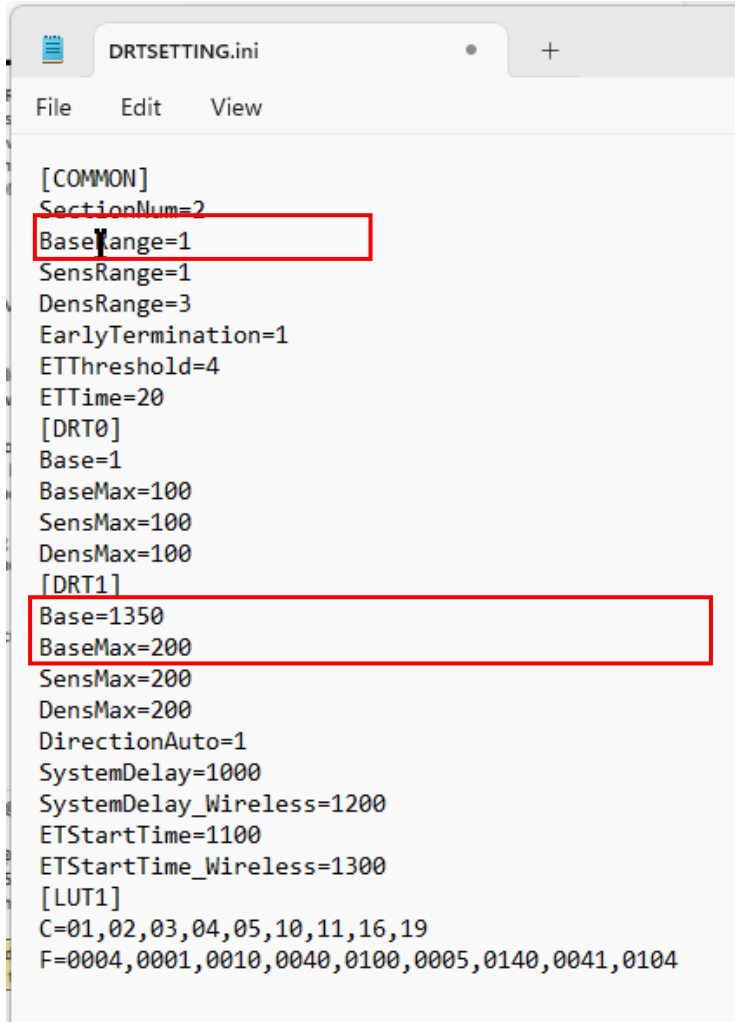
Base:
Is the TPV (default entrance dose) without any adjustment of Density and Sensitivity.

BaseRange:
The number of steps allowed to increase or decrease the Base value by the Base Level from the protocol editor.
BaseRange = 1 means no change possible, 16 means Base Level can be changed in steps from -16 to +16.

BaseMax:
The maximum change allowed in % when Base Level is max.



NAME	Very Small	Small	Medium	Large
SID On	NO	NO	**NO**	NO
SID	-1.0	-1.0	**-1.0**	-1.0
GridInfo	DISABLED	DISABLED	**DISABLED**	DISABLED
Detector Stand Angle On	YES	YES	**YES**	YES
Detector Stand Angle	0.00	0.00	**0.00**	0.00
Detector AEC Assist	YES	YES	**YES**	YES
Active Detector AEC	A,B	A,B	**A,B**	A,B
ROI Calc Type	OR	OR	**OR**	OR
Sensitivity	0	0	**0**	0
DRT Density	0	0	**0**	0
Max Exposure Time (ms)	1000	1000	**1000**	1000
Base Level	0	0	**0**	0
Detector Rotation	Auto rotation link	Auto rotation link	**Auto rotation link**	Auto rotation link



BIAA PARAMETERS

BASE

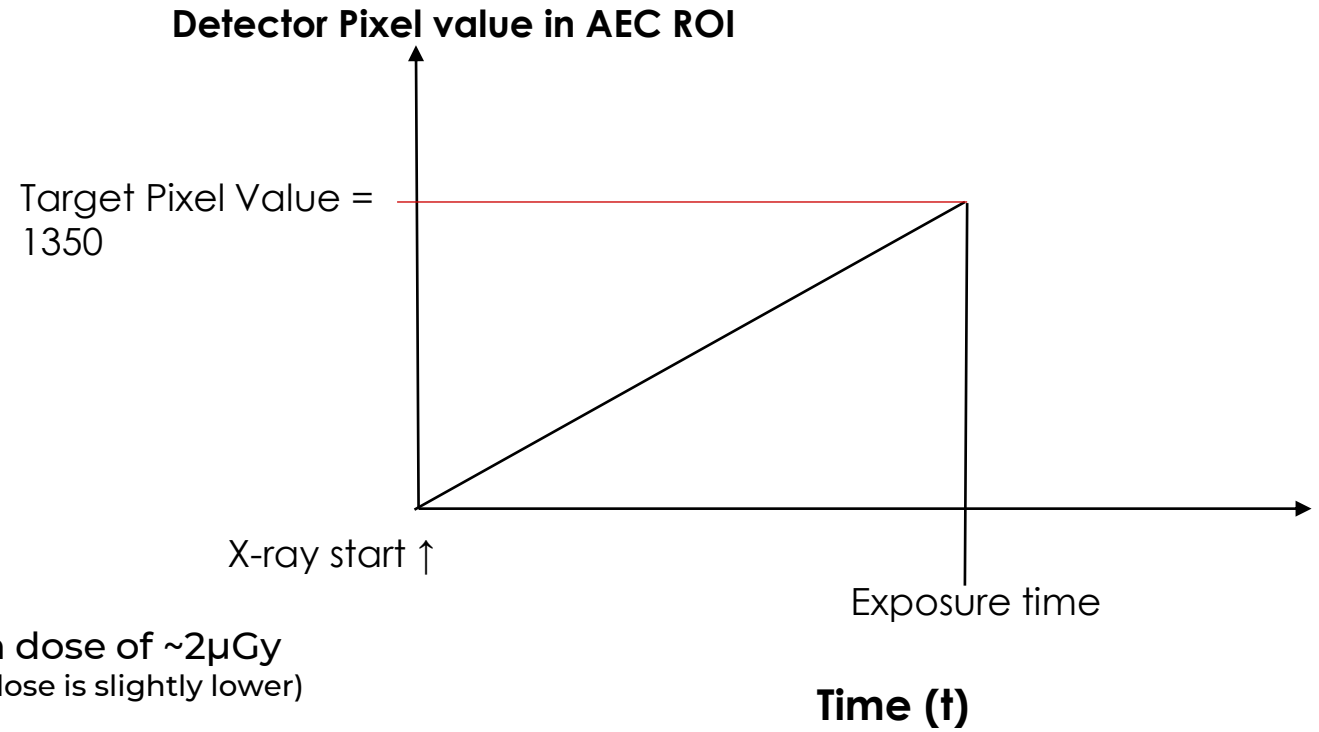
Example adjusting Base value

At RQA5 beam quality conditions
(HVL of 6.8 mm AL and 21mm AL added)

Density and Sensitivity adjustments discarded.

EI= 100 x Base / S_{fpd}

S_{fpd} = 678 LSB/µGy at RQA5



With a Base = 1350 => EI = 200 => results in screen dose of ~2µGy
(Due to non-ideal RQA conditions the actual measured screen dose is slightly lower)

BIAA PARAMETERS

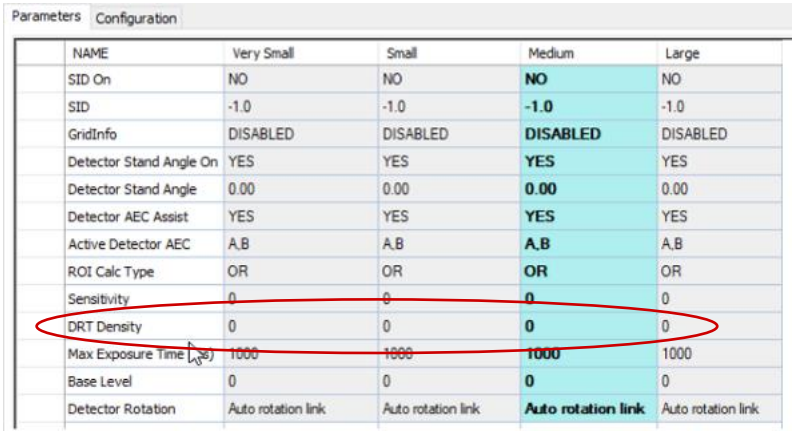
DENSITY

-Settings from DRTSetting.ini file located in the Canon CCS folder

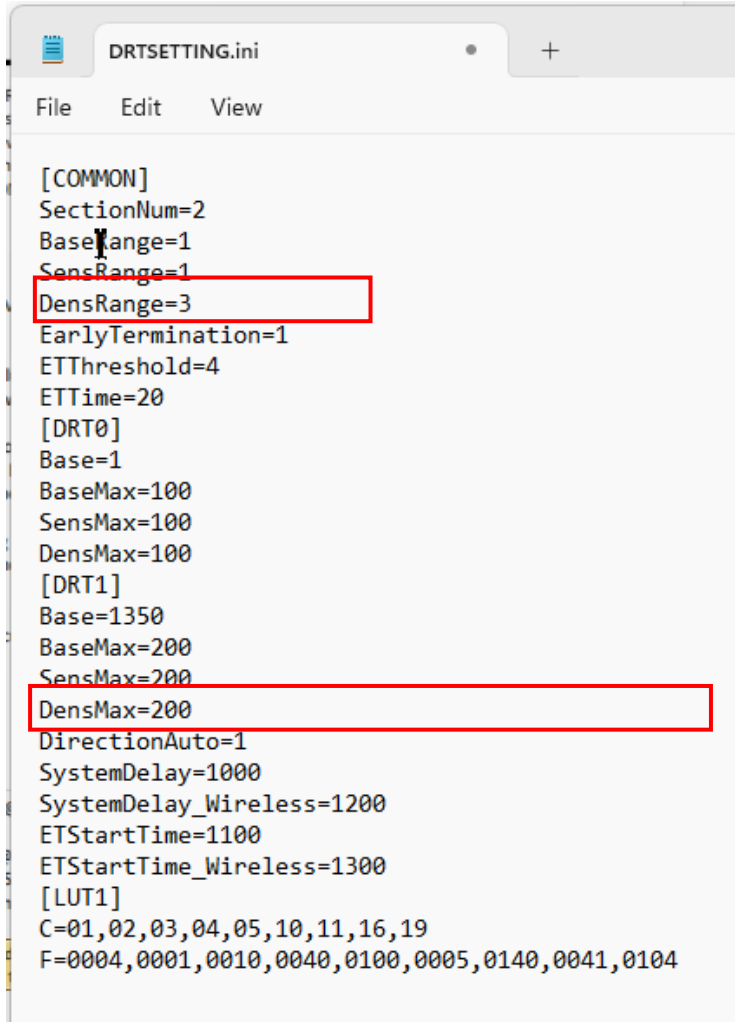
Density:
Is the TPV (default entrance dose) without any adjustment of Density and Sensitivity.

DensRange:
The number of steps allowed to increase or decrease the TPV by the DRT Density from the protocol editor.
DensRange = 0 means no change possible, 16 means Density Level can be changed in steps from -16 to +16.

DensMax:
The maximum change allowed in % when DRT Density is max.



NAME	Very Small	Small	Medium	Large
SID On	NO	NO	**NO**	NO
SID	-1.0	-1.0	**-1.0**	-1.0
GridInfo	DISABLED	DISABLED	**DISABLED**	DISABLED
Detector Stand Angle On	YES	YES	**YES**	YES
Detector Stand Angle	0.00	0.00	**0.00**	0.00
Detector AEC Assist	YES	YES	**YES**	YES
Active Detector AEC	A,B	A,B	**A,B**	A,B
ROI Calc Type	OR	OR	**OR**	OR
Sensitivity	0	0	**0**	0
DRT Density	0	0	**0**	0
Max Exposure Time (s)	1000	1000	**1000**	1000
Base Level	0	0	**0**	0
Detector Rotation	Auto rotation link	Auto rotation link	**Auto rotation link**	Auto rotation link



BIAA PARAMETERS

DENSITY

Example adjusting DRT Density

Formula: TPV = Base x (B') x D

$$TPV = Base \times \sqrt[BaseRange]{(BaseMax \div 100)^{BaseLevel}} \times \sqrt[DensRange]{(DensMax \div 100)^{DRT\ Density}}$$

BIAA PARAMETERS

DENSITY - RANGE AND STEPS

Example adjusting Density in a protocol or from overwrap GUI

DensRange = 16 steps
DensMax = 200 % (max of 200% dose increase)
DRT Density = +2 (Density step + 2 is selected)

$$\sqrt[DensRange]{(DensMax \div 100)^{DRT\ Density}}$$

2 Density steps: + 9%

TPV = Base * D = 1315 * $\sqrt[16]{(200 \div 100)^2}$
= 1315 * 1.09 = 1434 (factor screen dose increase of (1434-1315)/1315 * 100%= +9%)

EI= 100 x TPV / S_{fpd} :

At DRT Density 0 : EI = 100 * 1315/678 = 194

At DRT Density 2: EI = 100 * 1434/678 = 211

BIAA PARAMETERS

DENSITY - RANGE AND STEPS

With a DensRange of 16 steps and a DensMax of max 200% dose increase, TPV = Base x (density factor):

Density Step +1 is $\sqrt[16]{(200 \div 100)^{1}}$ **= 1.044**

Density Step +2 is $\sqrt[16]{(200 \div 100)^{2}}$ **= 1.09**

Density Step +3 is $\sqrt[16]{(200 \div 100)^{3}}$ **= 1.14**

Density Step +4 is $\sqrt[16]{(200 \div 100)^{4}}$ **= 1.19**

.

.

Density Step +15 is $\sqrt[16]{(200 \div 100)^{15}}$ **= 1.91**

Density Step +16 is $\sqrt[16]{(200 \div 100)^{16}}$ **= 2**

With a DensRange of 3 steps and a DensMax of max 200% dose increase, TPV = Base x (density factor):

Density Step +1 is $\sqrt[3]{(200 \div 100)^{1}}$ **= 1.26**

Density Step +2 is $\sqrt[3]{(200 \div 100)^{2}}$ **= 1.59**

Density Step +3 is $\sqrt[3]{(200 \div 100)^{3}}$ **= 2**

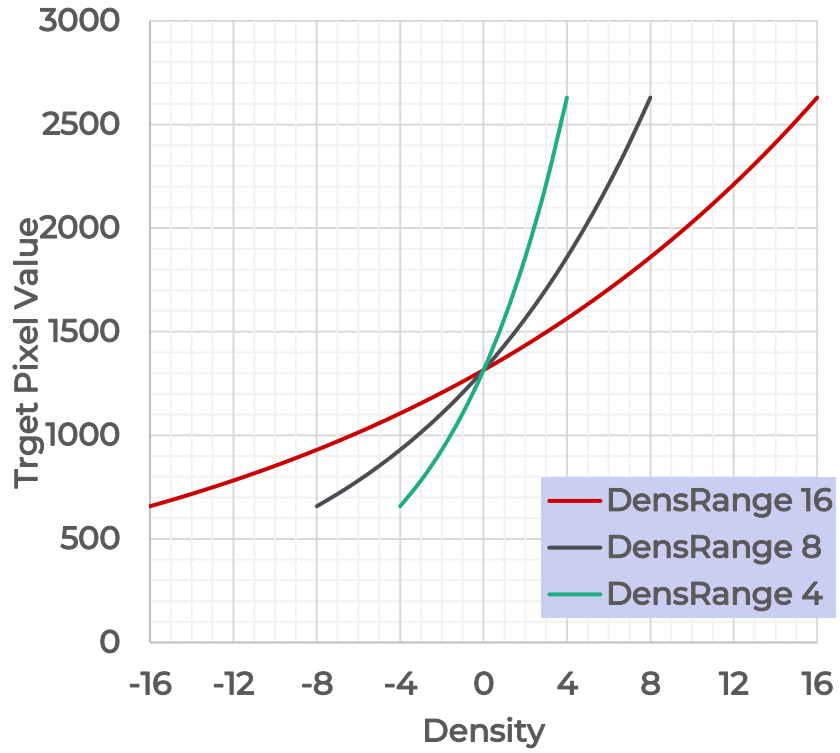
Density Step -1 is $\sqrt[3]{(200 \div 100)^{-1}}$ **= 0.79**

Density Step -2 is $\sqrt[3]{(200 \div 100)^{-2}}$ **= 0.63**

Density Step -3 is $\sqrt[3]{(200 \div 100)^{-3}}$ **= 0.5**

BIAA PARAMETERS

DENSITY - RANGE AND STEPS



Base = 1315
DensMax = 200
DensityRange: see table

	TPV	TPV	TPV				
				% per step			
	DensRange 16	DensRange 8	DensRange 4				
Density	16	8	4				
-16	657.5			2.21%			
-15	686.6			2.31%			
-14	717.0			2.41%			
-13	748.8			2.52%			
-12	781.9			2.63%			
-11	816.5			2.75%			
-10	852.7			2.87%			
-9	890.4			3.00%			
-8	929.8	657.5		3.13%	4.53%		
-7	971.0	717.0		3.27%	4.93%		
-6	1014.0	781.9		3.41%	5.38%		
-5	1058.9	852.7		3.57%	5.87%		
-4	1105.8	929.8	657.5	3.72%	6.40%	9.46%	
-3	1154.7	1014.0	781.9	3.89%	6.98%	11.25%	
-2	1205.9	1105.8	929.8	4.06%	7.61%	13.38%	
-1	1259.2	1205.9	1105.8	4.24%	8.30%	15.91%	
0	1315.0	1315.0	1315.0	0.00%	0.00%	0.00%	
1	1373.2	1434.0	1563.8	4.43%	9.05%	18.92%	
2	1434.0	1563.8	1859.7	4.62%	9.87%	22.50%	
3	1497.5	1705.3	2211.6	4.83%	10.76%	26.76%	
4	1563.8	1859.7	2630.0	5.04%	11.74%	31.82%	
5	1633.0	2028.0		5.27%	12.80%		
6	1705.3	2211.6		5.50%	13.96%		
7	1780.8	2411.7		5.74%	15.22%		
8	1859.7	2630.0		6.00%	16.60%		
9	1942.0			6.26%			
10	2028.0			6.54%			
11	2117.8			6.83%			
12	2211.6			7.13%			
13	2309.5			7.45%			
14	2411.7			7.78%			
15	2518.5			8.12%			
16	2630.0			8.48%			

BIAA PARAMETERS

SENSITIVITY

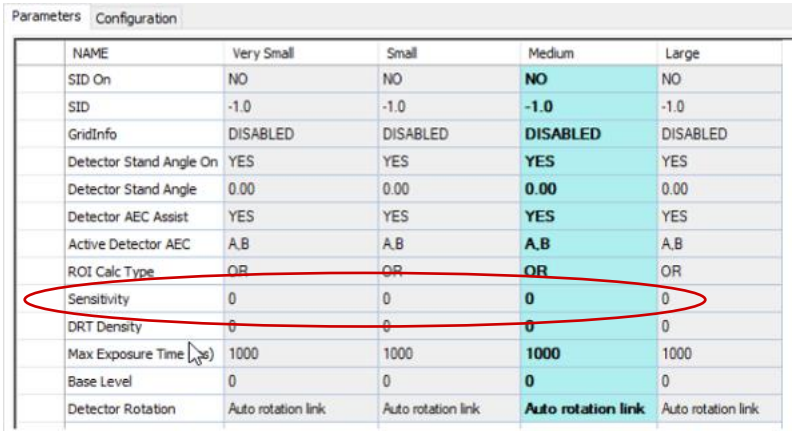
-Settings from DRTSetting.ini file located in the Canon CCS folder

Sensitivity:
Is the TPV (default entrance dose) without any adjustment of Density and Sensitivity.

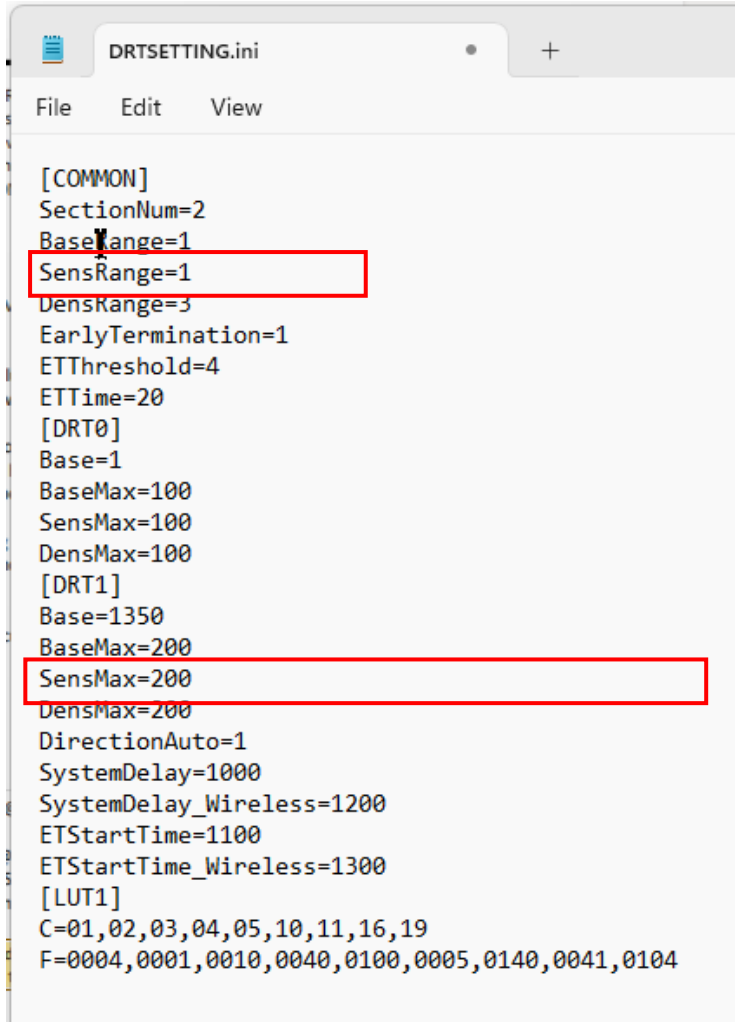
SensRange:
The number of steps allowed to increase or decrease the TPV by the Sensitivity from the protocol editor.
SensRange = 0 means no change possible, 16 means Sensity Level can be changed in steps from -16 to +16.

SensMax:
The maximum change allowed in % when DRT Density is max.

*Note: Increasing the Sensitivity in the protocol editor results in a lower dose



NAME	Very Small	Small	Medium	Large
SID On	NO	NO	**NO**	NO
SID	-1.0	-1.0	**-1.0**	-1.0
GridInfo	DISABLED	DISABLED	**DISABLED**	DISABLED
Detector Stand Angle On	YES	YES	**YES**	YES
Detector Stand Angle	0.00	0.00	**0.00**	0.00
Detector AEC Assist	YES	YES	**YES**	YES
Active Detector AEC	A,B	A,B	**A,B**	A,B
ROI Calc Type	OR	OR	**OR**	OR
Sensitivity	0	0	**0**	0
DRT Density	0	0	**0**	0
Max Exposure Time (ms)	1000	1000	**1000**	1000
Base Level	0	0	**0**	0
Detector Rotation	Auto rotation link	Auto rotation link	**Auto rotation link**	Auto rotation link



BIAA PARAMETERS

SENSITIVITY

Example adjusting Sensitivity

Formula: TPV = Base x (B') x S

$$TPV = Base \times \sqrt[BaseRange]{(BaseMax \div 100)^{BaseLevel}} \times \sqrt[SensRange]{(SensMax \div 100)^{-Sensitivity}}$$

BIAA PARAMETERS

SENSITIVITY - RANGE AND STEPS

Example adjusting Sensivity in a protocol

SensRange = 16 steps
SensMax = 200 % (max of 200% dose increase)
Sensitivity = +2 (+ 2 is selected in protocol editor)

$$\sqrt[SensRange]{(SensMax \div 100)^{-Sensitivity}}$$

2 Sensitivity steps: - 8.4%

TPV = Base * S = $1315 * \sqrt[16]{(200 \div 100)^{-2}}$
= 1315 * 0.917 = 1205 (factor screen dose increase of (1205-1315)/1315 x 100%= -8.4%)

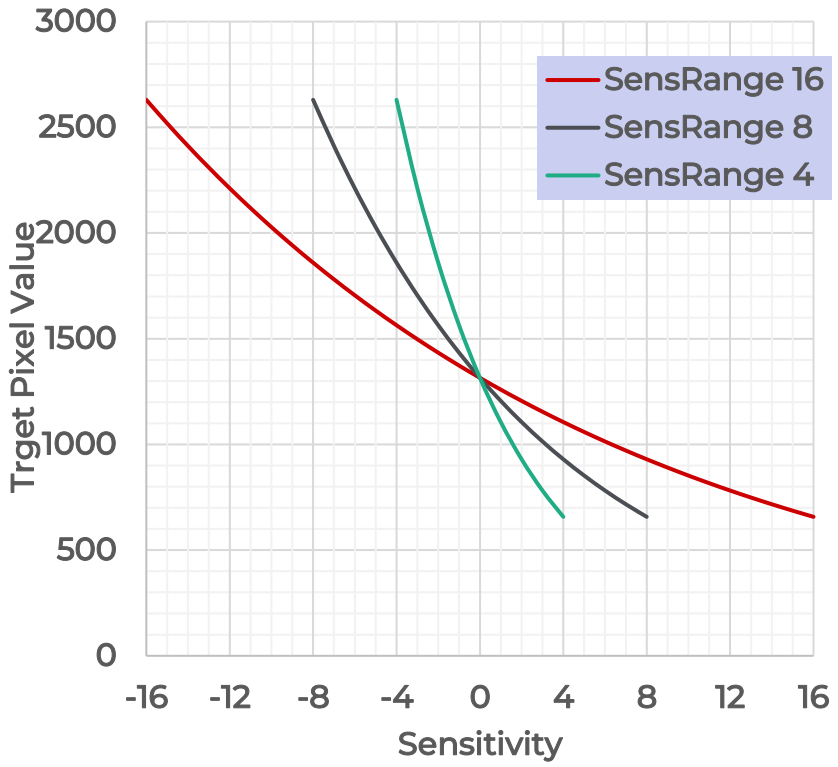
EI= 100 x TPV / S_{fpd} :

At Sensivity 0 : EI = 100 * 1315/678 = 194

At Sensivity +2: EI = 100 * 1205/678 = 177

BIAA PARAMETERS

SENSITIVITY - RANGE AND STEPS



	SensRange 16	SensRange 8	SensRange 4
Sensitivity	16	8	4
-16	2630,0		
-15	2518,5		
-14	2411,7		
-13	2309,5		
-12	2211,6		
-11	2117,8		
-10	2028,0		
-9	1942,0		
-8	1859,7	2630,0	
-7	1780,8	2411,7	
-6	1705,3	2211,6	
-5	1633,0	2028,0	
-4	1563,8	1859,7	2630,0
-3	1497,5	1705,3	2211,6
-2	1434,0	1563,8	1859,7
-1	1373,2	1434,0	1563,8
0	1315,0	1315,0	1315,0
1	1259,2	1205,9	1105,8
2	1205,9	1105,8	929,8
3	1154,7	1014,0	781,9
4	1105,8	929,8	657,5
5	1058,9	852,7	
6	1014,0	781,9	
7	971,0	717,0	
8	929,8	657,5	
9	890,4		
10	852,7		
11	816,5		
12	781,9		
13	748,8		
14	717,0		
15	686,6		
16	657,5		

BIAA PARAMETERS

SUMMARY - BASE, DENSITY AND SENSITIVITY

Formula: TPV = Base x (B') x S D

$$TPV = Base \times \sqrt[BaseRange]{(BaseMax \div 100)^{BaseLevel}} \times \sqrt[SensRange]{(SensMax \div 100)^{-Sensitivity}} \times \sqrt[DensRange]{(DensMax \div 100)^{Density}}$$

BIAA PARAMETERS

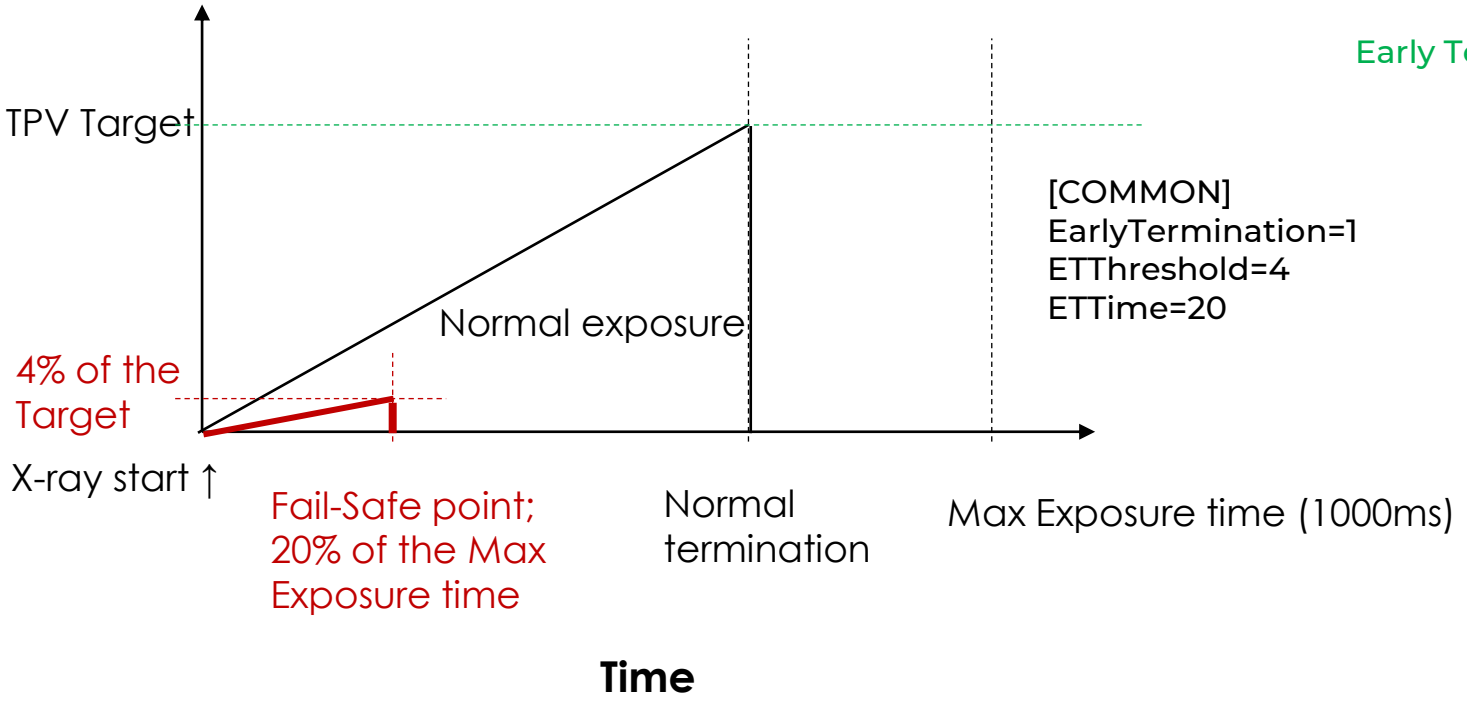
SAFETY PARAMETERS

BIAA PARAMETERS

SAFETY PARAMETERS

Early Termination in DRTSetting.ini

In case detector does not detect any incoming dose due to mispositioning, the exposure is terminated



Early Termination

[COMMON]
EarlyTermination=1
ETThreshold=4
ETTime=20

DRTSETTING.ini

File Edit View

```
[COMMON]
SectionNum=2
BaseRange=1
SensRange=1
DensRange=3
EarlyTermination=1
ETThreshold=4
ETTime=20
[DRT0]
Base=1
BaseMax=100
SensMax=100
DensMax=100
[DRT1]
Base=1350
BaseMax=200
SensMax=200
DensMax=200
DirectionAuto=1
SystemDelay=1000
SystemDelay_Wireless=1200
ETStartTime=1100
ETStartTime_Wireless=1300
[LUT1]
C=01,02,03,04,05,10,11,16,19
F=0004,0001,0010,0040,0100,0005,0140,0041,0104
```

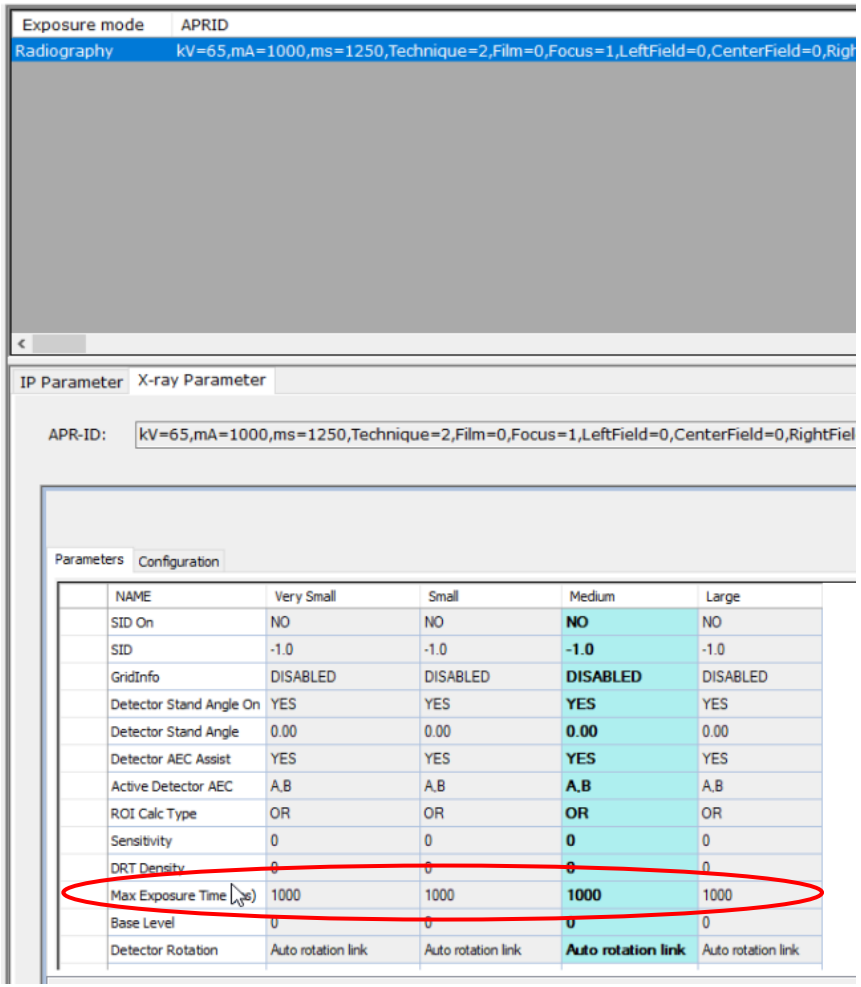
BIAA PARAMETERS

SAFETY PARAMETERS IN DRTSETTINGS.INI

Early Termination

Max Exposure time from Protocol Editor
Cruise command:

- Used for fail save time ETTime calculation.
- Default 1000ms.
- Max Exposure Time is only used for the early termination function (this will not affect the backup time).

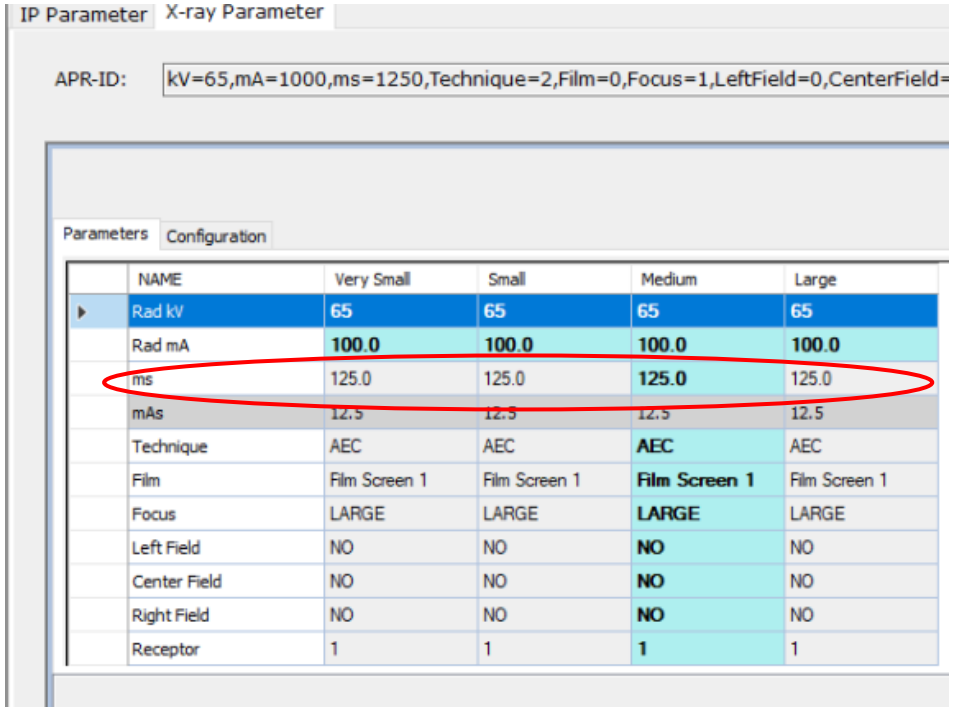


BIAA PARAMETERS

SAFETY PARAMETERS

Exposure Backup time

- Exposure time from Protocol Editor also acts as backup timer controlled from the generator in BiAA mode.
- Generator Receptor setup includes a backup timer as well.



NAME	Very Small	Small	Medium	Large
Rad kV	65	65	65	65
Rad mA	100.0	100.0	100.0	100.0
ms	125.0	125.0	125.0	125.0
mAs	12.5	12.5	12.5	12.5
Technique	AEC	AEC	AEC	AEC
Film	Film Screen 1	Film Screen 1	Film Screen 1	Film Screen 1
Focus	LARGE	LARGE	LARGE	LARGE
Left Field	NO	NO	NO	NO
Center Field	NO	NO	NO	NO
Right Field	NO	NO	NO	NO
Receptor	1	1	1	1

BIAA PARAMETERS

WARNINGS AND SAFETY CHECKS

Wireless communication delay support functions

Pre-exposure notifications

UseWifiAlertWithBiAA.xml (NE V3.11.2.7 and later)

FPD Firmware:	02.04.00.03 or later
FPD FPGA:	01.01.03.00 or later
MB-02 Firmware:	01.02.00.01 or later

Monitors detector's Wifi signals **strength** and communication **delay** status before exposing in BiAA mode.

- Starts measuring communication signal:
  FPD in: Waiting and Ready state

- Stops measuring communication signal:
  FPD in: Not-Ready or Capturing state

BIAA PARAMETERS

WARNINGS AND SAFETY CHECKS

Wireless communication delay support functions

Pre-exposure notifications

UseWifiAlertWithBiAA.xml

```
<?xml version="1.0" encoding="utf-8"?>
<WifiAlertWithBiAA xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <Step1>
      <Level>Error</Level>                    At Wifi signal level “weak” or “medium”
 </Step1>
 <Step2>
    <Alert1>
      <Level>Warning</Level>
      <Rate>20</Rate>                         Delay rate in %
      <Time>3000</Time>                       Communication delay time threshold in µsec
    </Alert1>
    <Alert2>
      <Level>Error</Level>
      <Rate>30</Rate>
      <Time>6000</Time>
      <Interval>8</Interval>                  Minimum alert interval in sec
    </Alert2>
  </Step2>
</WifiAlertWithBiAA>
```

BIAA PARAMETERS

WARNINGS AND SAFETY CHECKS

Wireless communication delay support functions

Prost-exposure notifications

UsePixelValueAlertWithBiAA.xml **(NE V3.11.2.7 and later)**

FPD Firmware:	02.04.00.03 or later
FPD FPGA:	01.01.03.00 or later
MB-02 Firmware:	01.02.00.01 or later

Monitors if the exposure is terminated before the anticipated BiAA exposure termination by checking the:

Pixel Value / Target Pixel Value (TPV)

WIFI PARAMETERS

WARNINGS AND SAFETY CHECKS

Prost-exposure notifications: Pixel Value / Target Pixel Value (TPV)

UsePixelValueAlertWithBiAA.xml

```
<?xml version="1.0" encoding="utf-8"?>
<PixelValueAlertWithBiAA xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <Level>Error</Level>
    <UpperThreshold>200</UpperThreshold>          In % >100
    <LowerThreshold>50</LowerThreshold>           In % from 1 to 100
    <InactiveBiAAAlert>true</InactiveBiAAAlert>
</PixelValueAlertWithBiAA >
```

Thank you so much for joining!

ARCOMA

THANK YOU

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