1.1. *FireCR* Calibration

Select IP Calibration in the System Menu, then the following window will pop up. Follow the steps in the menu.

> **WARNING**
>
> Calibrate the scanner before use. The "Please calibrate system" message pops up if the scanner is not calibrated or calibration data does not exist.
>
> It is recommended to calibrate the reader after moving it and as a part of regular maintenance.
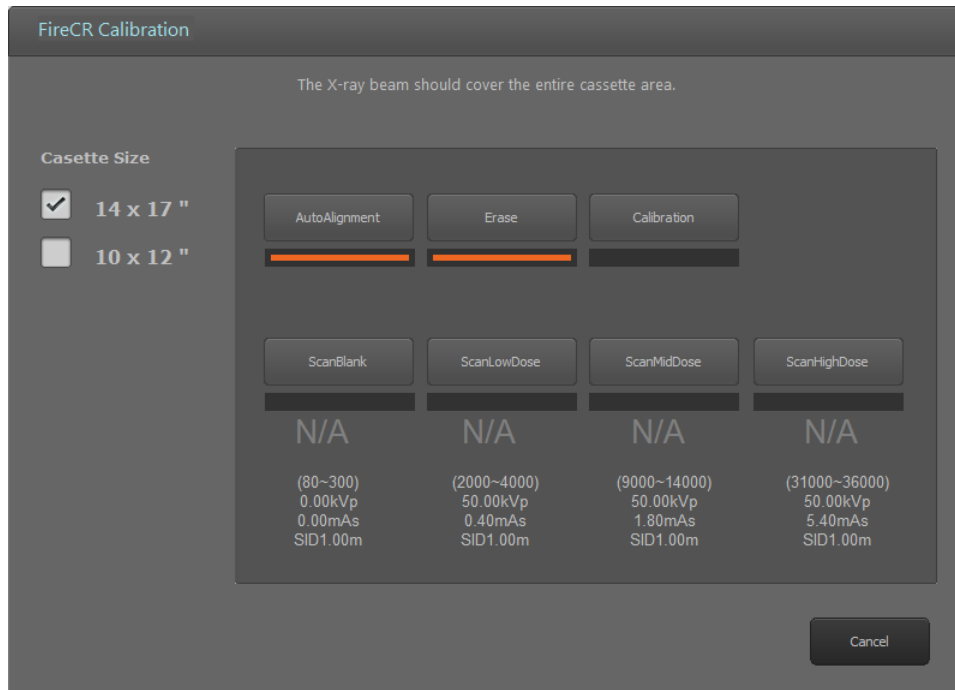
Figure 2.14. IP Calibration

> **WARNING**
>
> Calibration should be done for both a Universal Cassette containing IP 14" x 17" and a Universal Cassette containing IP 10" x 12".

| Name	Description
Auto Alignment	Alignment of laser beam position.
Erase	Erase IP.
Scan Blank	Create the first calibration image file.
Scan Low Dose	Create the second calibration image file.
Scan Mid Dose	Create the third calibration image file.
Scan High Dose	Create the fourth calibration image file.
Calibration	Create a calibration data file. After a successful calibration the calibration window will automatically close.
Cancel	Close the IP Calibration window. This will abort the current calibration.
Cassette Size	Select the IP size for calibration.
Accept	Accept a calibration image file. The Accept button is displayed to accept calibration image files with values out of range.
Reject	Reject a calibration image file. The Reject button is displayed to reject calibration image files with values out of range.

1.1.1. *Calibration Geometry*
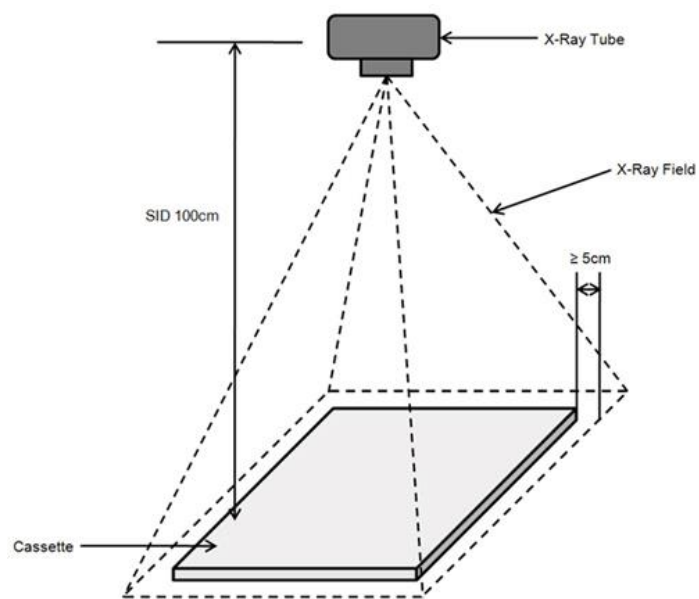
Figure 2.15. Calibration Geometry

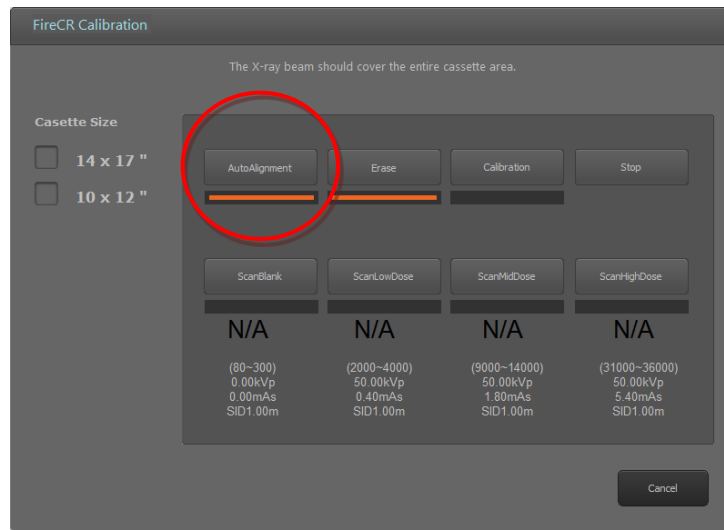| ⚠️	**WARNING**
	X-ray radiation field must cover the whole area of the cassette.

1.1.2.   *Step 1: Auto Alignment*

Figure 2.16. Auto Alignment

- Perform Auto Alignment before starting calibration to find the optimal laser beam position.

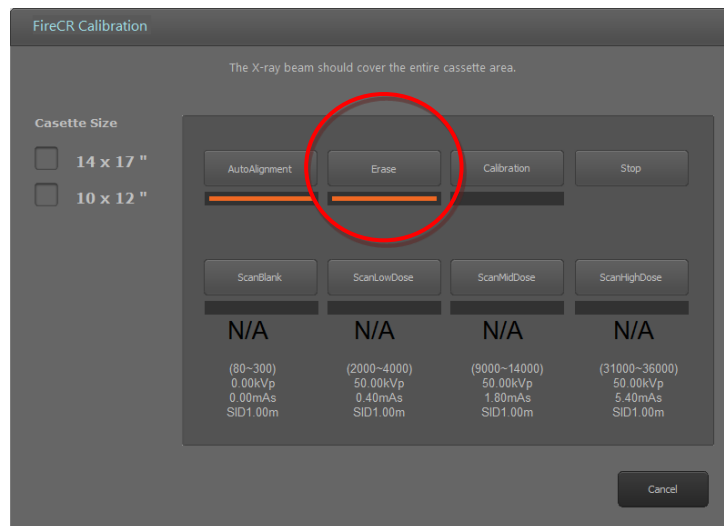## 1.1.3.   *Step 2: Erase*

Figure 2.17. Erase

- The Erase button is enabled when the cassette is inserted to the reader.
- It erases the cassette before calibration.
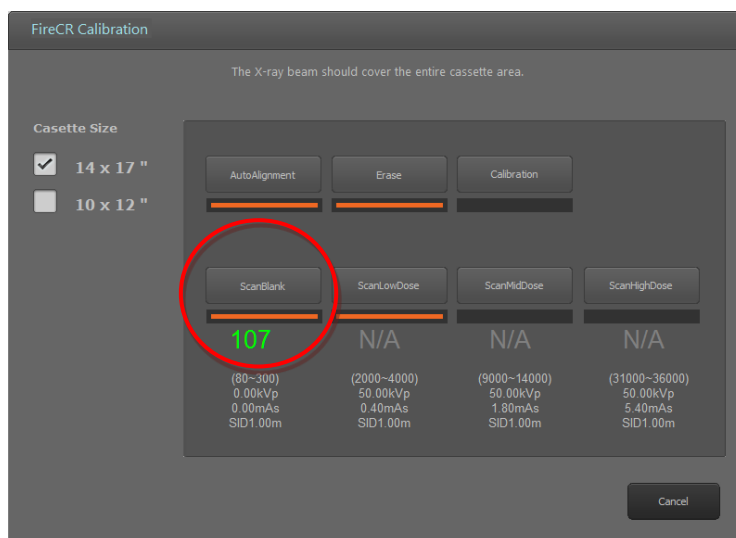
1.1.4. *Step 3: Scan Blank*

Figure 2.18. Scan Blank

- The **Scan Blank** button is enabled after performing the Erase step.
- After the Erase step, insert the cassette with no X-ray exposure into the reader and click **Scan Blank** to acquire the first calibration image.
- The mean intensity value of the blank image is displayed beneath the button.
- The mean intensity value of the blank image is displayed in green if the value is within the acceptable range.
- The mean intensity value of the blank image is displayed in red if the value is not within the acceptable range.
- If the mean intensity value of the blank image is displayed in red, click **Accept** to continue anyways or **Reject** to try again.
- To lower the mean intensity value of the blank image, click **Erase** again.
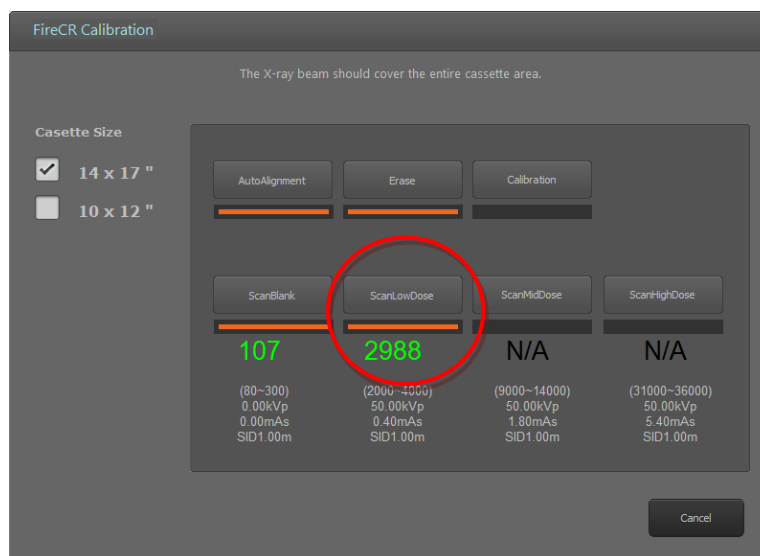
1.1.5. *Step 4: Scan Low Dose*

Figure 2.19. Scan Low Dose

- The **Scan Low Dose** button is enabled after performing a **Scan Blank**.
- Expose the cassette to the X-ray with the conditions noted below the **Scan Low Dose** button.
  Then, insert the cassette into the reader and click **Scan Low Dose** to acquire the second calibration image.
- The mean intensity value of the low dose image is displayed beneath the button.
- The mean intensity value of the low dose is displayed in green if the value is within the acceptable range.
- The mean intensity value of the low dose is displayed in red if the value is not within the acceptable range, click **Accept** to continue anyways or **Reject** to try again.
- Increase the X-ray dose to increase the mean intensity value or lower the X-ray dose to decrease the mean intensity value. ***If changes are made to technique (Dose) please note the new values used (KVp, mAs) and input the new data in C:\QuantorMed+\firecr.ini**
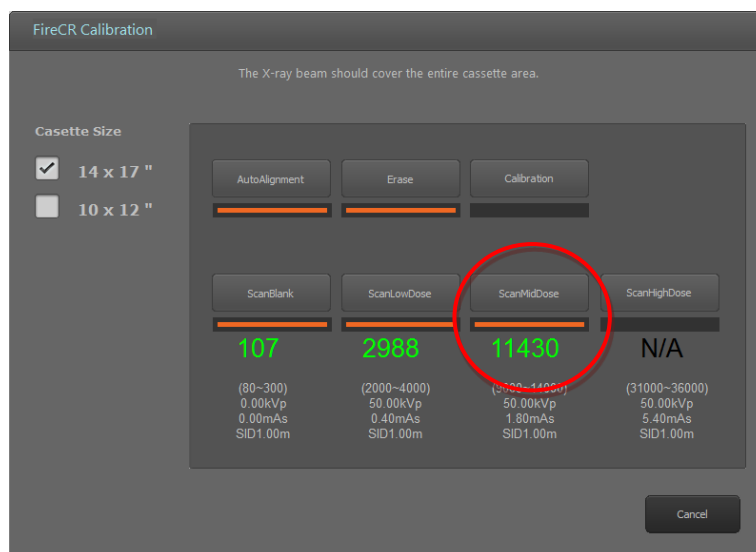
1.1.6.   *Step 5: Scan Mid Dose*

Figure 2.20. Scan Mid Dose

- The Scan Mid Dose button is enabled after performing a Scan Low Dose.
- Expose the cassette to the X-ray with the conditions noted below the ***Scan Mid Dose*** button.
  Then, insert the cassette into the reader and click ***Scan Mid Dose*** button to acquire the third calibration image.
- The mean intensity value of the mid dose image is displayed beneath the button.
- The mean intensity value of the mid dose is displayed in green if the value is within acceptable range.
- The mean intensity value of the mid dose is displayed in red if the value is not within the acceptable range, click ***Accept*** to continue anyways or ***Reject*** to acquire the mid dose image again.
- Increase the X-ray dose to increase the mean intensity value or lower the X-ray dose to decrease the mean intensity value.

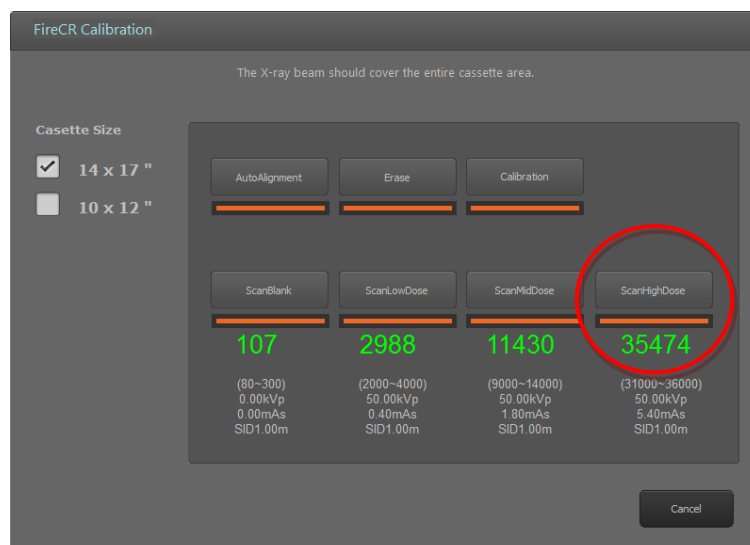## 1.1.7.   *Step 6: Scan High Dose*

Figure 2.21. Scan High Dose

- The **Scan High Dose** button is enabled after performing a Scan Mid Dose.
- Expose the cassette to the X-ray with the conditions noted below the **Scan High Dose** button.
  Then, insert the cassette into the reader and click **Scan High Dose** button to acquire the fourth calibration image.
- The intensity value of the high dose image is displayed beneath the button.
- The intensity value of the high dose is displayed in green if the value is within the acceptable range.
- The intensity value of the high dose is displayed in red if the value is not within the acceptable range, click **Accept** to continue anyways or **Reject** to acquire the high dose image again.
- Increase the X-ray dose to increase the mean intensity value or lower the X-ray dose to decrease the mean intensity value. ***If changes are made to technique (Dose) please note the new values used (KVp, mAs) and input the new data in C:\QuantorMed+\firecr.ini**
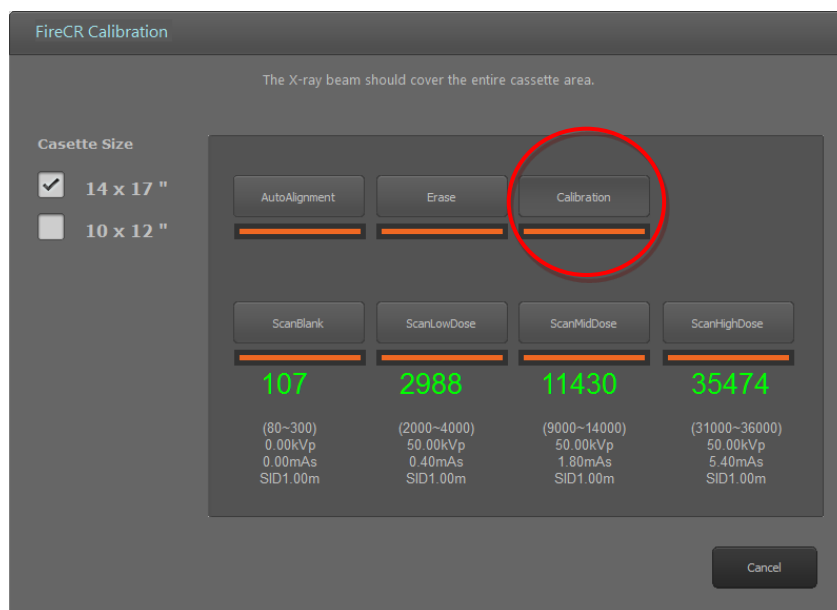
1.1.8.   *Step 7: Calibration!*

Figure 2.22. Calibration

- The **Calibration** button is enabled after performing a successful Scan High Dose.
- Click the **Calibration** button to generate calibration data. Calibration data is saved in your local program folder.
- After generation of calibration data, the calibration window closes automatically.

1.1.9.   *Step 8: Cancel*

- You can exit calibration window in the middle of process. This will abort your current calibration process.

1.1.10. *Note*

- When the mean intensity value for each step is within acceptable range, values are shown in green.
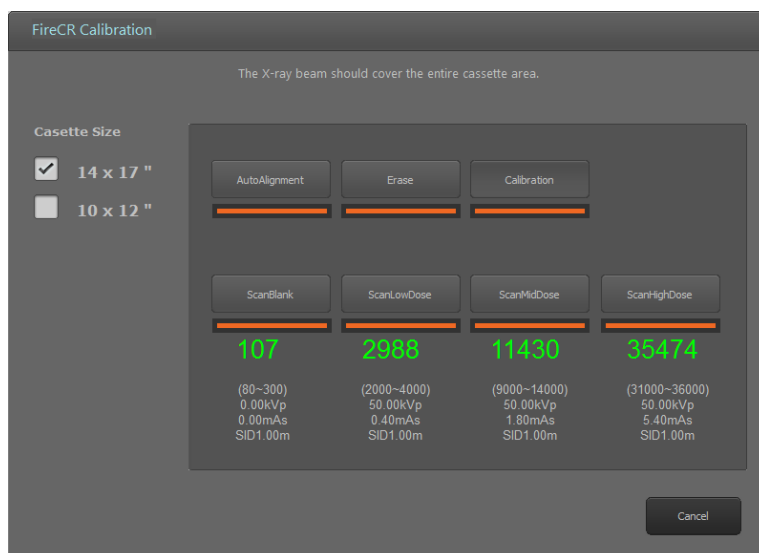

Figure 2.23. Proper Calibration

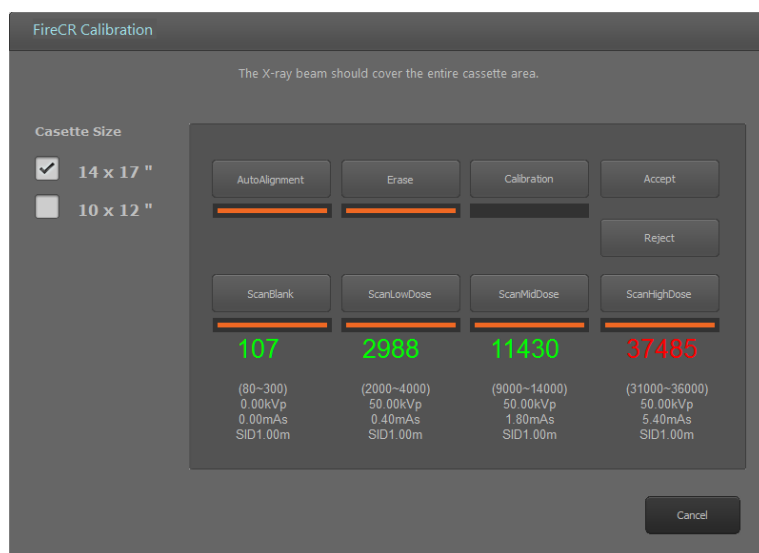- When the mean intensity value for each step is not within acceptable range, values are shown in red.

Figure 2.24. Improper Calibration

- Start the calibration process from **Auto Alignment** or **Erase** for recalibration of the reader.

NOTE

Following the calibration process, two sets of four images used for calibration and two calibration files are generated in local program folder.