

How to do the Calibration

Issues

1. How to do the Calibration

Calibration Preparation

For the calibration of the CR, it is important to note the difference between dental and medical use.

1. For FireCR Dental reader: Size 4C imaging plate and X-ray device
2. For FireCR Spark (Flash) reader: Large cassette (35cm x43cm) and X-ray device

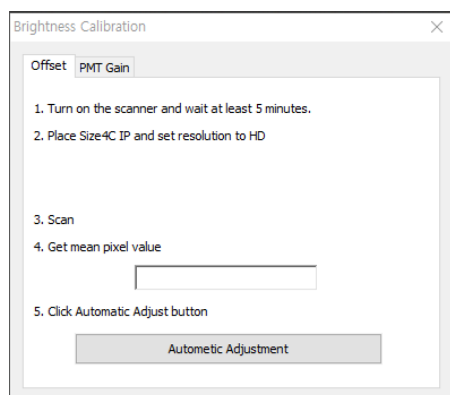
Calibration Steps

1. For FireCR Dental reader

Note) Calibration is not required in general usage. But offset and PMT gain values are required to calibrated if acquired image is too bright or dark. In the system menu, select IP Calibration to open a window as shown. Process calibration as instructed in the window.

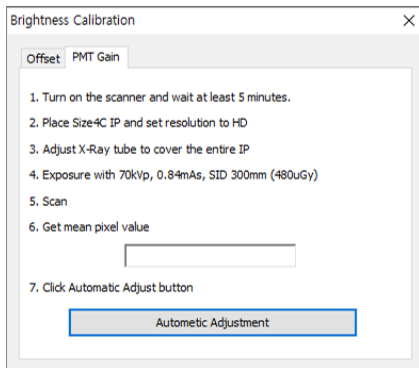
Step 1: ADC Offset Calibration

- 1) Turn on the scanner and connect the software to.
- 2) Place a size 4C imaging plate in the tray and set the resolution to HD.
- 3) Start scan.
- 4) Mean pixel value will be displayed automatically after image is acquired
- 5) Click “Automatic Adjustment” button for offset calibration



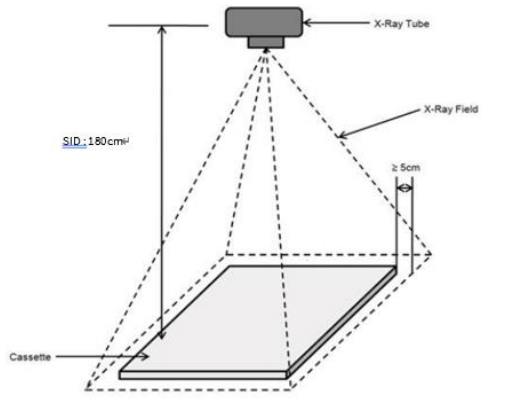
Step 2: PMT Gain Calibration

- 1) Turn on the scanner and connect the software to.
- 2) Place Size 4C IP on the scanner's tray and set resolution to HD
- 3) Adjust X-Ray tube to cover the entire IP
- 4) Set X-Ray condition to 70kVp, 0.84mAs, SID 300mm (480uGy) and exposure
- 5) Start scan
- 6) Mean pixel value will be displayed automatically after image is acquired
- 7) Click "Automatic Adjustment" button for PMT gain calibration



2. For FireCR Spark(Flash) reader

Note) The Spark scanner has two sets of calibrations (tabletop, wall mount) installed and must be updated when the laser optical assembly is replaced. We recommend Calibration when moving and installing the scanner. During the Calibration X-ray radiation field must cover the whole area of the cassette.



Note) SID may vary depending on site conditions. If you want to change the position of the reader, select different reader position and follow steps 1-7. If you calibrate in a different position, the image may not be good. Therefore, after selecting the correct position, perform "Calibration".

Step 1: Auto Alignment

- 1) Prepare an X-ray device and Cassette 35cm x 43cm.
- 2) After selecting the Reader Position, insert the Cassette into the Spark reader.
- 3) Click the "AutoAlignment"

Device Calibration 00 %

The X-ray beam should cover the entire IP area.

Reader Position: ☒ Table Top ☐ Wall Mount Upload Download

☐ Show Calibration Data Intensity Value Calibration date: N/A

Auto Alignment Erase Calibration

ScanBlank	ScanLowDose	ScanMidDose	ScanHighDose
N/A	N/A	N/A	N/A
(200-450)	(1000-2000)	(4500-6500)	(35000-45000)
0.0yGy	6.6yGy	20.0yGy	250.0yGy
0.00kVp	68.00kVp	68.00kVp	68.00kVp
0.00mA	0.40mA	1.20mA	16.00mA
SID 1800 mm	SID 1800 mm	SID 1800 mm	SID 1800 mm

ScannerReady: None 200um

The exposure conditions may vary depending on the x-ray equipment

Cancel

Step 2: Erase

4) When AutoAlignment is completed, the “Erase” button is activated. Click the “Erase”
When Erase is complete, take out the Cassette.

Device Calibration 00 %

The X-ray beam should cover the entire IP area.

Reader Position: ☒ Table Top ☐ Wall Mount Upload Download

☐ Show Calibration Data Intensity Value Calibration date : N/A

Auto Alignment **Erase** Calibration

ScanBlank ScanLowDose ScanMidDose ScanHighDose

ScanBlank	ScanLowDose	ScanMidDose	ScanHighDose
N/A	N/A	N/A	N/A
(200-450) 0.0pGy	(1000-2000) 6.6pGy	(4500-6500) 20.0pGy	(35000-45000) 250.0pGy
0.00kVp 0.00mAs SID 1800 mm	68.00kVp 0.40mAs SID 1800 mm	68.00kVp 1.20mAs SID 1800 mm	68.00kVp 16.00mAs SID 1800 mm

ReadyForScan 35x43 200um

The exposing conditions may vary depending on the x-ray equipment.

Cancel

Step 3: ScanBlank

5) Insert the Cassette. When the “ScanBlank” button is active, click the “ScanBlank”.

Device Calibration 100 %

The X-ray beam should cover the entire IP area.

Reader Position: ☒ Table Top ☐ Wall Mount Upload Download

☐ Show Calibration Data Intensity Value Calibration date : N/A

Auto Alignment Erase Calibration

ScanBlank ScanLowDose ScanMidDose ScanHighDose

ScanBlank	ScanLowDose	ScanMidDose	ScanHighDose
N/A	N/A	N/A	N/A
(200-450) 0.0pGy	(1000-2000) 6.6pGy	(4500-6500) 20.0pGy	(35000-45000) 250.0pGy
0.00kVp 0.00mAs SID 1800 mm	68.00kVp 0.40mAs SID 1800 mm	68.00kVp 1.20mAs SID 1800 mm	68.00kVp 16.00mAs SID 1800 mm

ReadyForScan 35x43 100um

The exposing conditions may vary depending on the x-ray equipment.

Cancel

6) When ScanBlank is completed, a green mark is generated, and take out the Cassette.

If a red mark is generated, contact the DIGIRAY service team

Device Calibration 100 %

The X-ray beam should cover the entire IP area.

Reader Position: ☒ Table Top ☐ Wall Mount Upload Download

☐ Show Calibration Data Intensity Value Calibration date : N/A

Auto Alignment Erase Calibration

ScanBlank ScanLowDose ScanMidDose ScanHighDose

ScanBlank	ScanLowDose	ScanMidDose	ScanHighDose
0(348)	N/A	N/A	N/A
(200-450) 0.0pGy	(1000-2000) 6.6pGy	(4500-6500) 20.0pGy	(35000-45000) 250.0pGy
0.00kVp 0.00mAs SID 1800 mm	68.00kVp 0.40mAs SID 1800 mm	68.00kVp 1.20mAs SID 1800 mm	68.00kVp 16.00mAs SID 1800 mm

ScannerReady None 100um

The exposing conditions may vary depending on the x-ray equipment.

Cancel

Step 4: ScanLowDose

7) Expose X-ray to Cassette and insert the Cassette on Spark reader. When the “ScanLowDose” button is active, click “ScanLowDose”

The screenshot shows the 'Device Calibration' window with a status of '100 %'. It includes a note: 'The X-ray beam should cover the entire IP area.' Below this, there are controls for 'Reader Position' (Table Top selected, Wall Mount unselected), 'Show Calibration Data Intensity Value' (unchecked), and 'Calibration date' (N/A). A progress bar is shown with buttons for 'Auto Alignment', 'Erase', and 'Calibration'. The main area contains four scan mode buttons: 'ScanBlank', 'ScanLowDose' (highlighted with a red box), 'ScanMidDose', and 'ScanHighDose'. Below these buttons is a table of exposure parameters:

ScanBlank	ScanLowDose	ScanMidDose	ScanHighDose
0(348)	N/A	N/A	N/A
(200-450)	(1000-2000)	(4500-6500)	(35000-45000)
0.0µGy	6.0µGy	20.0µGy	250.0µGy
0.00kVp	68.00kVp	68.00kVp	68.00kVp
0.00mAs	0.40mAs	1.20mAs	16.00mAs
SID 1800 mm	SID 1800 mm	SID 1800 mm	SID 1800 mm

At the bottom, it says 'ReadyForScan 35x43 100um' and 'The exposing conditions may vary depending on the x-ray equipment'. A 'Cancel' button is in the bottom right.

8) Take out the cassette when “ScanLowDose” is complete. If a red mark is generated, click the “Reject” button. Adjust the X-ray dose and expose to the cassette.

* If it is lower than the recommended range, a red mark appears. Adjust the x-ray dose higher and expose.

This screenshot shows the same 'Device Calibration' window, but now the 'Reject' button is highlighted with a red box. The 'ScanLowDose' button is no longer highlighted. The table of exposure parameters has been updated:

ScanBlank	ScanLowDose	ScanMidDose	ScanHighDose
0(348)	888	N/A	N/A
(200-450)	(1000-2000)	(4500-6500)	(35000-45000)
0.0µGy	6.0µGy	20.0µGy	250.0µGy
0.00kVp	68.00kVp	68.00kVp	68.00kVp
0.00mAs	0.40mAs	1.20mAs	16.00mAs
SID 1800 mm	SID 1800 mm	SID 1800 mm	SID 1800 mm

The status at the bottom is now 'ScannerReady 35x43 100um'. The 'Cancel' button remains in the bottom right.

9) Expose X-ray to Cassette and insert the Cassette on Spark reader. When "ScanLowDose" is activated, click ScanLowDose".

Device Calibration 100 %

The X-ray beam should cover the entire IP area.

Reader Position
☒ Table Top ☐ Wall Mount Upload Download

☐ Show Calibration Data Intensity Value Calibration date : N/A

Auto Alignment Erase Calibration

ScanBlank ScanLowDose ScanMidDose ScanHighDose

0(348)	888	N/A	N/A
(200-450)	(1000-2000)	(4500-6500)	(35000-45000)
0.0µGy	6.6µGy	20.0µGy	250.0µGy
0.00kVp	68.00kVp	68.00kVp	68.00kVp
0.00mAs	0.40mAs	1.20mAs	16.00mAs
SID 1800 mm	SID 1800 mm	SID 1800 mm	SID 1800 mm

ReadyForScan 35x43 100um

The exposing conditions may vary depending on the x-ray equipment.

Cancel

10) Take out the cassette when "ScanLowDose" is complete.

Device Calibration 100 %

The X-ray beam should cover the entire IP area.

Reader Position
☒ Table Top ☐ Wall Mount Upload Download

☐ Show Calibration Data Intensity Value Calibration date : N/A

Auto Alignment Erase Calibration

ScanBlank ScanLowDose ScanMidDose ScanHighDose

0(348)	1363	N/A	N/A
(200-450)	(1000-2000)	(4500-6500)	(35000-45000)
0.0µGy	6.6µGy	20.0µGy	250.0µGy
0.00kVp	68.00kVp	68.00kVp	68.00kVp
0.00mAs	0.40mAs	1.20mAs	16.00mAs
SID 1800 mm	SID 1800 mm	SID 1800 mm	SID 1800 mm

WarmUp 35x43 100um

The exposing conditions may vary depending on the x-ray equipment.

Cancel

Step 5: ScanMidDose

11) Expose X- ray stronger than "ScanLowDose" to the cassette and insert the Cassette on Spark reader. When the "ScanMidDose" button is active, click "ScanMidDose".

Device Calibration 100 %

The X-ray beam should cover the entire IP area.

Reader Position
☒ Table Top ☐ Wall Mount Upload Download

☐ Show Calibration Data Intensity Value Calibration date : N/A

Auto Alignment Erase Calibration

ScanBlank ScanLowDose ScanMidDose ScanHighDose

0(348)	1363	N/A	N/A
(200-450)	(1000-2000)	(4500-6500)	(35000-45000)
0.0µGy	6.6µGy	20.0µGy	250.0µGy
0.00kVp	68.00kVp	68.00kVp	68.00kVp
0.00mAs	0.40mAs	1.20mAs	16.00mAs
SID 1800 mm	SID 1800 mm	SID 1800 mm	SID 1800 mm

ReadyForScan 35x43 100um

The exposing conditions may vary depending on the x-ray equipment.

Cancel

12) Take out the cassette when "ScanMidDose" is complete.

The screenshot shows the 'Device Calibration' window at 100% completion. The 'Reader Position' is set to 'Table Top'. The 'Calibration date' is 'N/A'. The 'Auto Alignment' button is active. The 'ScanMidDose' button is highlighted with a red box. Below the buttons, a table displays the following data:

ScanLowDose	ScanMidDose	ScanHighDose	N/A
0(348)	1363	5133	N/A
(200-450)	(1000-2000)	(4500-6500)	(35000-45000)
0.0pGy	6.6pGy	20.0pGy	250.0pGy
0.00kVp	68.00kVp	68.00kVp	68.00kVp
0.00mAs	0.40mAs	1.20mAs	16.00mAs
SID 1800 mm	SID 1800 mm	SID 1800 mm	SID 1800 mm

ScannerReady 35x43 100um

The exposing conditions may vary depending on the x-ray equipment.

Step 6: ScanHighDose

13) Expose X-ray stronger than "ScanMidDose" to the cassette and insert the Cassette on Spark reader. When the "ScanHighDose" button is active, click "ScanHighDose".

* If it is lower than the recommended range, a red mark appears. Adjust the x-ray dose higher and expose.

The screenshot shows the 'Device Calibration' window at 100% completion. The 'Reader Position' is set to 'Table Top'. The 'Calibration date' is 'N/A'. The 'Auto Alignment' button is active. The 'ScanHighDose' button is highlighted with a red box. Below the buttons, a table displays the following data:

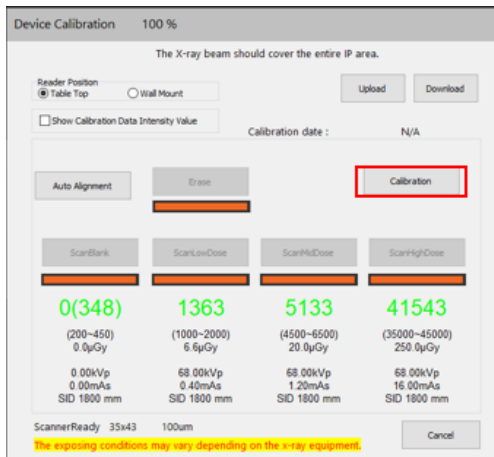
ScanLowDose	ScanMidDose	ScanHighDose	N/A
0(348)	1363	5133	N/A
(200-450)	(1000-2000)	(4500-6500)	(35000-45000)
0.0pGy	6.6pGy	20.0pGy	250.0pGy
0.00kVp	68.00kVp	68.00kVp	68.00kVp
0.00mAs	0.40mAs	1.20mAs	16.00mAs
SID 1800 mm	SID 1800 mm	SID 1800 mm	SID 1800 mm

ReadyForScan 35x43 100um

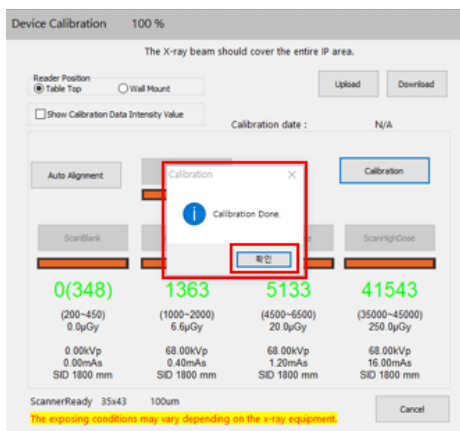
The exposing conditions may vary depending on the x-ray equipment.

Step 7: Upload

14) Take out the cassette when "ScanHighDose" is complete. If a green mark is generated, click the "Calibration".



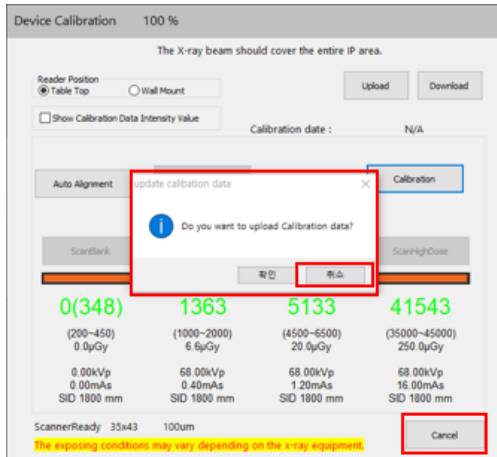
15) When calibration is complete, click “확인” (it means OK) on the pop-up window.



16) If a pop-up window to upload calibration data appears, click “취소” (it's means cancel).

And click the “Cancel”. Then Calibration is complete.

The reason we do not recommend uploading is to avoid uploading data of malfunctioning X-ray devices or incorrectly performed calibrations.



◆ Contact Digiray's Technical Team

****Submit a Ticket****

For further assistance, email ****service1@digiray.co.kr**** with the following information:

1. ****Last Name****
2. ****First Name****
3. ****Company****
4. ****Email****
5. ****Country****
6. ****Phone****
7. ****Serial Number**** (attach a photo of the product label)
8. ****Message****

Attachments:

1. A photo of the product label on the back of the equipment
2. A photo or video of the equipment's initial symptoms
3. Actions taken and current equipment status
4. Screenshot of the 'Scanner Control' window

✧ Providing detailed information will ensure you receive prompt and efficient service assistance.