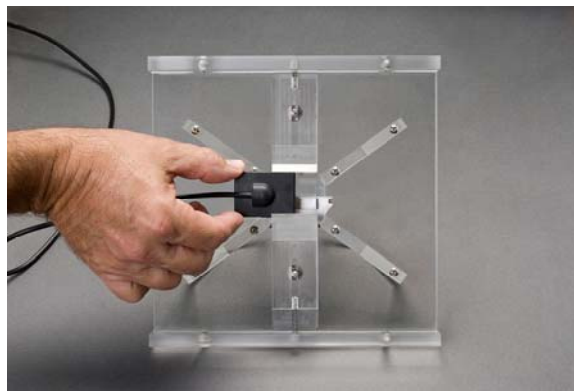


Digital Dental Quality Assurance Manual

Initial Baseline and Longitudinal Assessment

Initial Baseline Assessment

1. Place the detector to be evaluated directly under the central portion of the Digital Dental Quality Assurance (DDQA) device * and secure in position by adjusting the two spring loaded clamps to center the detector. With size 0 or 1 sensors, the operator may need to adjust the position of the sensor to image all the contrast detail wells. This may cut off part of the stepwedge portion of the DDQA device due to the small active areas on the size 0 and 1 detectors.

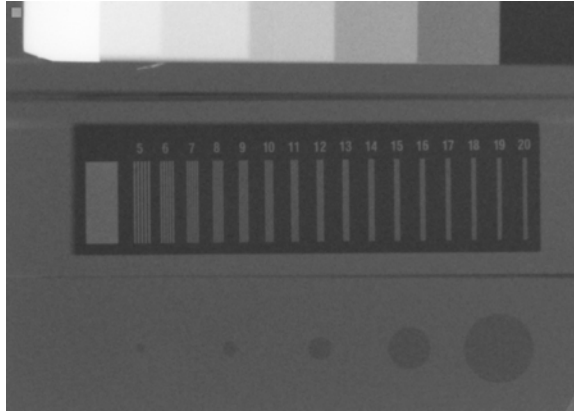


2. Place the DDQA device with the digital sensor attached to the underside on a flat surface within reach of the x-ray source.
3. Place the x-ray beam indicating device directly on top of the four rest tabs on the top of the DDQA device.



4. Adjust the kVp and mA to the settings which will be used for clinical exposures. Start at the lowest possible exposure time and save a series of images while incrementally increasing the exposure time. Determine the highest and lowest exposure where all the steps (7 density levels) of the stepwedge can be clearly

delineated. Record these values on the Initial Baseline Worksheet (See Page 4). An example of image showing all seven step is shown below.



Note: Seven Steps, 5-20 line pairs, and 5 holes

5. Count the number of visible line pairs in the image at the highest exposure time as determined in step 4. Record the visible line pairs value on the Initial Baseline Worksheet.
6. In the same images, count the number of visible holes (maximum 5) and record this value on the Initial Baseline Worksheet.
7. For each image acquired in Step 4, count the number of visible line pairs and holes. Record these values on the Initial Baseline Worksheet.
8. The lowest exposure in which the maximum line-pairs and number of holes can be visualized is the Baseline Quality Assurance Exposure.
9. Record this exposure time as the Baseline Quality Assurance Exposure setting on the Initial Baseline Worksheet.
10. Acquire and save a digital image with the Baseline Quality Assurance Exposure setting determined in step 9. This image will be used for comparison in the Longitudinal Quality Assurance Assessment.
11. To test another sensor from the same manufacturer, the operator only needs to loosen one side of the adjustment clamp to remove and replace the sensor thereby saving time.
12. Data for each sensor should be recorded separately on a separate Initial Baseline Worksheet.

*** patent pending**

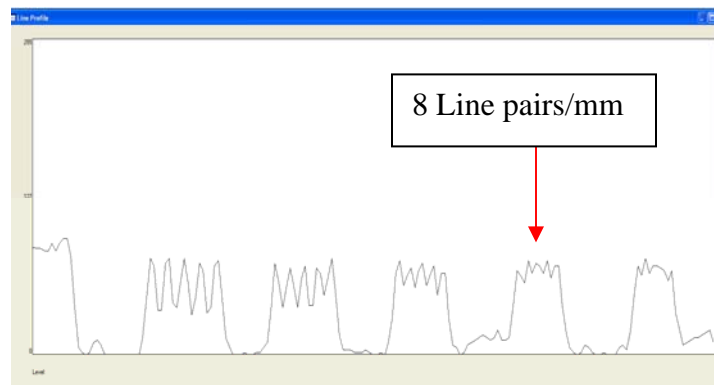
Longitudinal Quality Assurance Assessment

1. Position the sensor and x-ray machine to be evaluated as described in step 1 through 3 in the Initial Baseline Assessment.
2. Acquire a digital image using the Quality Assurance Exposure settings from the corresponding Initial Baseline Worksheet.
3. Compare the number of steps, line-pairs and holes present in the baseline image to the new image.
4. Record the date, technician and results in the Longitudinal Quality Assurance Record (See Page 5).
5. This procedure can be repeated to verify sensor performance at scheduled intervals to be determined by the individual facility such as weekly, biweekly or monthly. However, it is strongly recommended that a quality control assessment evaluation be performed on the sensor if the sensor has been dropped, mishandled or bitten by a patient.

Objective Line-Pair Analysis using UTHSCSA ImageTool software

Download ImageTool

1. UTHSCSA ImageTool[®] is free image analysis software for Windows based computers that can be downloaded at <http://ddsdx.uthscsa.edu/dig/download.html>.
2. Download “ImageTool” in IT.ZIP folder and hit the run icon button which will then unzip and install the UTHSCSA ImageTool program on your computer.
3. The image to be analyzed with ImageTool can be in tif, jpg or bmp format.
4. Click File >>Open Image... then navigate to the image to be analyzed and click Open.
5. After the image has been opened, click on the Analysis Drop Down Menu on the Tool Bar and select line profile.
6. A line profile is drawn across the line pair gauge on the image and the highest line pairs/mm with five distinct peaks and four distinctive troughs is selected as the line pair resolution of that image.



Digital Dental Quality Assurance

Initial Baseline Worksheet

Date: _____

Technician: _____

Sensor (Manufacturer, Model, Serial #): _____

X-ray Machine (Manufacturer, Model, Serial #): _____

kVp: _____

mA: _____

Highest Exposure Limit: _____

Lowest Exposure Limit: _____

Exposure Time	Steps	Line-Pairs	Holes

Quality Assurance Exposure: _____ sec.

Longitudinal Quality Assurance Record

Sensor (Manufacturer, Model, Serial #): _____

X-ray Machine (Manufacturer, Model, Serial #): _____

kVp: _____

mA: _____

Baseline Quality Assurance Exposure: _____ sec.

Baseline Date	Technician	Steps	Line-Pairs	Holes

Date	Technician	Steps	Line-Pairs	Holes