

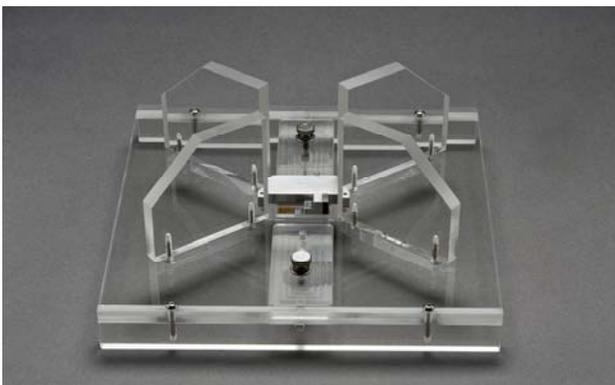
Dental Digital Intra-Oral Performance Evaluation Phantom

Product Description

The Dental Digital Intra-Oral Phantom provides users with a unique comprehensive test object designed for routine reproducible performance evaluation for dental digital intra-oral systems. The phantom incorporates three components - each designed to evaluate one aspect of digital intra-oral image quality.

Image quality parameters that can be evaluated with a single exposure include:

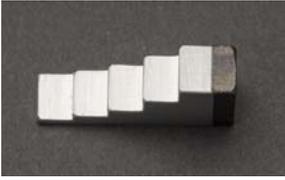
- Dynamic Range
- Low contrast resolution
- Line pair resolution



Features

- Quick and easy phantom setup with stable base.
- All in one design allows users to assess dental image receptors using a clinical exposure setting at a fixed image to source distance, saving valuable time.
- Each component provides a quantitative assessment of an image parameter critical to the overall image quality.
- Image area is the size of #2 film.
- Quantifiable measurement results.
- Produces reproducible and comparable performance evaluation of the digital intra-oral imaging system over time for quality assurance.
- Produces reproducible and comparable performance evaluation of different digital intra-oral imaging systems for performance evaluation of various manufacturer's digital imaging systems.
- Clear plastic base with adjustable spring loaded clamps with locking cams allow the user to adjust for the different active imaging areas of various manufacturer's image receptors.
- Allows for evaluation of intra-oral imaging systems using both round and rectangular collimation beam indicating devices.
- Suitable for use with Size #0, #1 and #2 sensors; however, not all areas are visible with a single exposure with #0 and #1 size sensors.
- Use of image analysis software UTHSCSA ImageTool allows for objective evaluation of line pair resolution in lp/mm.
- Includes a robust protective foam form-fitting carrying case.
- Also able to evaluate image quality of intra-oral films.

Dynamic Range



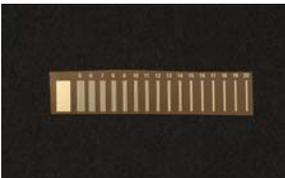
An aluminum step wedge consisting of 6 steps and a piece of lead at high end of the step wedge allow for evaluation of the image scale from no attenuation with the air space to complete attenuation with the lead block. The incremental steps of the step wedge allow for different attenuation of the photon beam. The goal is to visualize all six steps on the step wedge represented by varying thicknesses of aluminum and have complete attenuation of the photons in the region of the lead block.

Low Contrast Resolution



The five low contrast uniform depth wells in acrylic plastic range in size from 0.5 to 4.3 mm diameter to provide an evaluation for low contrast perceptibility with the digital imaging system. The goal is to visualize all five of the low contrast depth wells. The number of visible contrast depth wells can easily be counted and recorded for performance evaluation over time for quality assurance or comparison of different intra-oral imaging systems. The low contrast resolution is evaluated with a block of aluminum placed over the detail contrast wells to approximate a mid range attenuation of the photon energy to closer approximate that which would be found in a clinical situation.

Line Pair Resolution



The line pair gauge provides a high contrast resolution evaluation of the digital imaging sensor. It is a gold foil resolution gauge measuring from 5 to 20 line pairs/mm which can be read by anyone with the naked eye (subjective analysis) or evaluated with an image analysis software such as UTHSCSA ImageTool for an objective analysis (free-ware downloadable at UTHSCSA.edu main page). Evaluation with image analysis software removes operator biases such as eyesight, fatigue, viewing conditions, and other factors. The high contrast resolution portion is also evaluated with the block of aluminum covering the line pair resolution gauge.

Evaluation Software

UTHSCSA ImageTool software can be downloaded at no charge from UTHSCSA website main page at www.uthscsa.edu and entering the search term ImageTool.

Dental Digital Intra-Oral Performance Evaluation Phantom Specifications

20 cm x 20 cm base, 9.5 cm in height • weight: 735 grams • 4 positioning tabs for beam indicating device

* Patent Pending