NOSIL DSc
INNOVATION Inc

PATENT PROTECTED

MADE IN CANADA

MODEL: DSP-N5

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🔷 Dr. Nosil's Spectrum Phantom

This dental test phantom is designed to assess the image quality produced by intraoral dental X-ray units employing either film or digital detectors. It is simple to position vis-a-vis the x-ray unit, and the information produced is easily interpreted.

It is intended to be used in the acceptance and routine testing of dental X-ray equipment, in the periodic quality control of the whole imaging process, and in system optimization. Direct comparison of the results obtained from different dental units, using different imaging systems, is facilitated through its use.

The phantom is design to be used with normal bitewing exposures between 60 and 90 kVp: the routine settings on the X-ray unit under examination are used in the testing.

The means by which this Image Quality information is obtained depends upon whether the detector used clinically is film or digital.

A single standard bitewing exposure of the phantom is all that is required to produce each quality assessment image. From this exposure of the film, it is possible to evaluate density, contrast, scatter to primary ratio, limiting resolution, and an estimate of image fog or background.

Special holders are designed for film, digital type 1 sensors, and type 2 sensors that are used for children and adults, respectively.

Digital images of the aluminum image quality plate are analyzed for tooth resolution at different contrasts in aluminum, PMMA contrast steps, and combinations of PMMA and Aluminum materials.

Josip Nosil
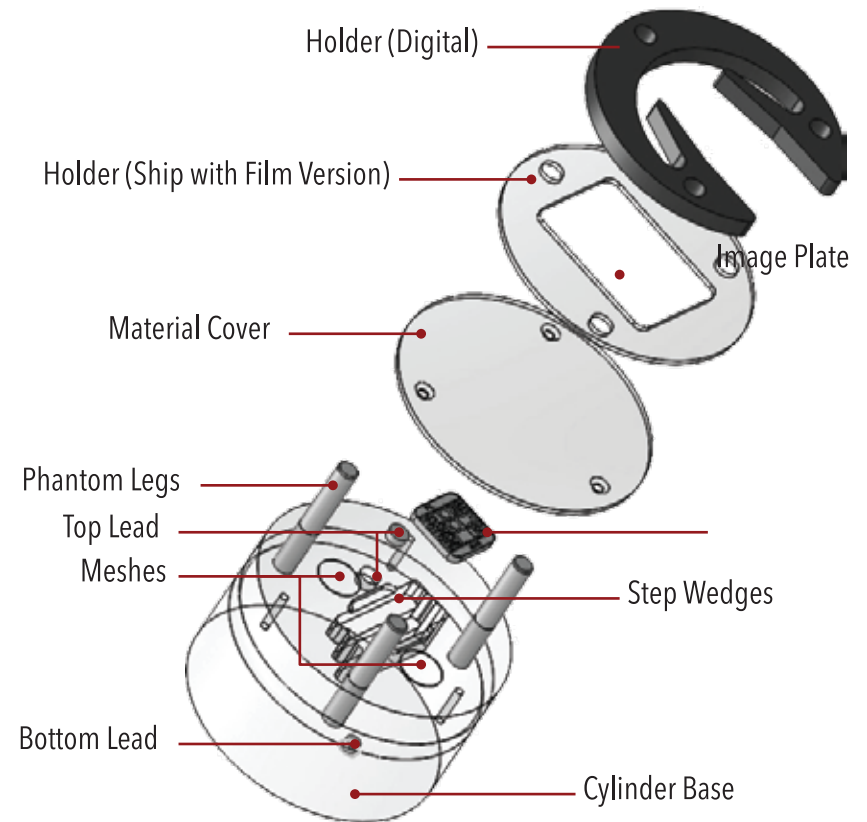Inventor - Dr. Josip Nosil

🔷 Inside this Package

1 - Intraoral Spectrum Phantom
2 - Intraoral Seensor Holders
1 - Phantom Storage Container with Clip Lid
1 - This User Manual

🔷 Components

- Holder (Digital)
- Holder (Ship with Film Version)
- Image Plate
- Material Cover
- Phantom Legs
- Top Lead
- Meshes
- Step Wedges
- Bottom Lead
- Cylinder Base

There are total **4** size of dental phantoms:
Regular - **Adult** (age 18 and up)   Pediatric - **Small** (age 5 and under)
Pediatric - **Medium** (age 6-11)   Pediatric - **Large** (age 12-17)

![logo] Installation and Use

Step 1

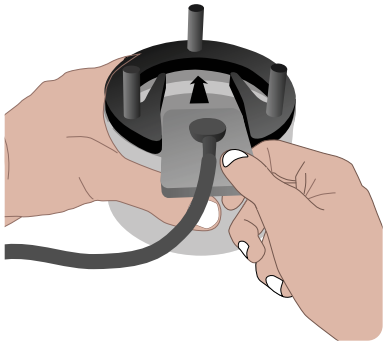Place the phantom on a stable horizontal surface with the black sensor holder on the top side.

Step 2

Slide the sensor in the black sensor holder with the cable connector on top as shown in the drawing on the left.

The black sensor holder should be placed so that the shiny, smooth surface faces the phantom and the rough, pebbled surface faces away from the phantom.

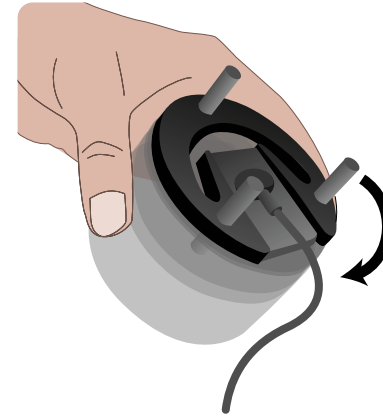Both black sensor holders should be placed on the phantom.

However ensure that the back sensor holder for your specific sensor thickness is always placed on the bottom closest to the phantom.

Please note: there are two black sensor holders included with your dental phantom system. One is for 6mm sensor detectors and the other is for 9mm sensor detectors. They can be removed by gently lifting the black sensor holder vertically off the three pins that attach the black sensor to the phantom.
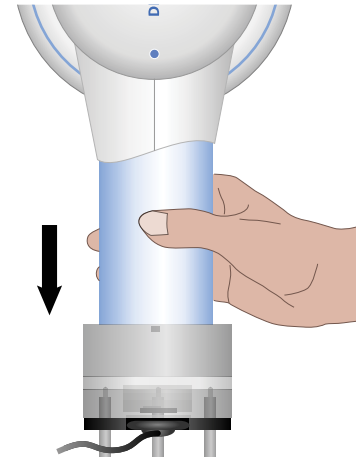
Step 3

Flip phantom with sensor detector installed over and place on a flat, stable, horizontal surface.

Step 4

Position dental x-ray unit pointing downward onto phantom as shown on the left picture.
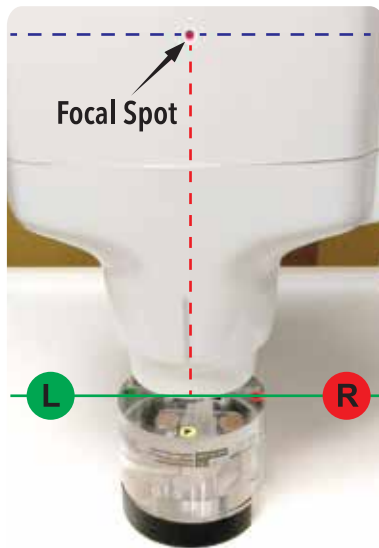
Please ensure following labels:
"A" (anode is on the left side of Phantom)
"C" (cathode is on the right of Phantom)
"F" (front of the Phantom)

Step 5

Focal Spot

L   R

Please check you dental x-ray unit and determine where there is a "dot" of your system indicating the anode location. This should be aligned with the "F" label on the phantom.

Blue and red dashed lines are invisible in the centre of the tube. Green line between R and L go through centre of the step wedges in the Phantom, and it is parallel to the tube axis (blue dashed line). Red dashed line point front the focal spot (FC) to the centre of the Phantom.

Step 6

0.08s

7mA DC

70kV   60kV

Select the setting for bitewing exposure (for the example provided a 0.08s is selected). Create a patient file for Quality Assurance before you press exposure. Store your phantom images in this file for reference and comparison over time.
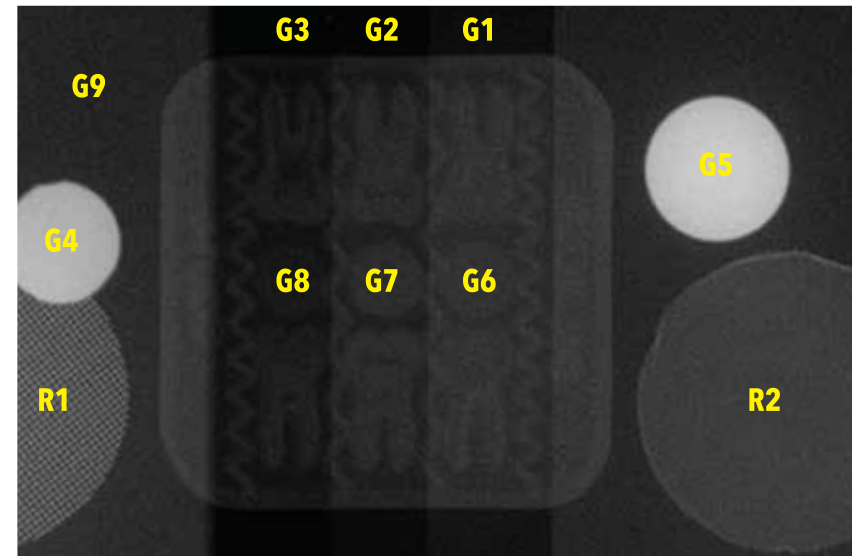
Step 7

Take exposure and review your image.

The image should look similar to the acceptance testing reference image. Compare your images over time and determine if there are any changes. Especially compare area G1 to G6, R1 and R2. If image over time looks similar to acceptance testing image, unit passes.

If images are different, please contact the appropriate authorities/resources as per your requirements.

G3   G2   G1
G9
G5
G4
G8   G7   G6
R1   R2

Please note: Compare your image above as display on your computer screen. Printing quality may not be as good as display quality.

This user manual can be downloaded from our website: www.drnosil.com under Inventions » Dental Intraoral Phantoms.

Support

Compare every image with standard image (acceptance testing image). Send images (that are different to acceptance testing images) to inspector, medical physicist or service engineer for advanced analysis as described in the advanced manual.

Certificate Sample

If you wish to obtain the certificate as shown below, please send all your X-ray unit Phantom images to certificate@drnosil.com or certified image quality surveyer for evaluation. If image quality meets acceptable standards, you will receive a certificate as per your Phantom purchase contract.