

gafchromic™ xr-rv3 dosimetry film user reference guide

visual evaluation of the surface peak skin dose

purpose

This protocol is for visually estimating the exposure dose of Gafchromic™ XR-RV3 dosimetry film using a printed comparator strip.

scope

Gafchromic™ XR-RV3 dosimetry film is used to record and measure patient skin exposure during interventional procedures where a high degree of accuracy in measuring skin dose is generally not required. The Gafchromic™ XR-RV3 Comparator Strip provides a simple and quick means for estimating the dose to an accuracy of approximately $\pm 25\%$. If required, a more precise quantitative evaluation can be made using a scanner or densitometer.

equipment and materials

1. Exposed sheet of Gafchromic™ XR-RV3 dosimetry film from a known lot number. Please note that the L and R indicate the orientation of the patient with respect to the film (Figure 1).
2. A comparator strip for the lot number of the film to be evaluated (Figure 2).

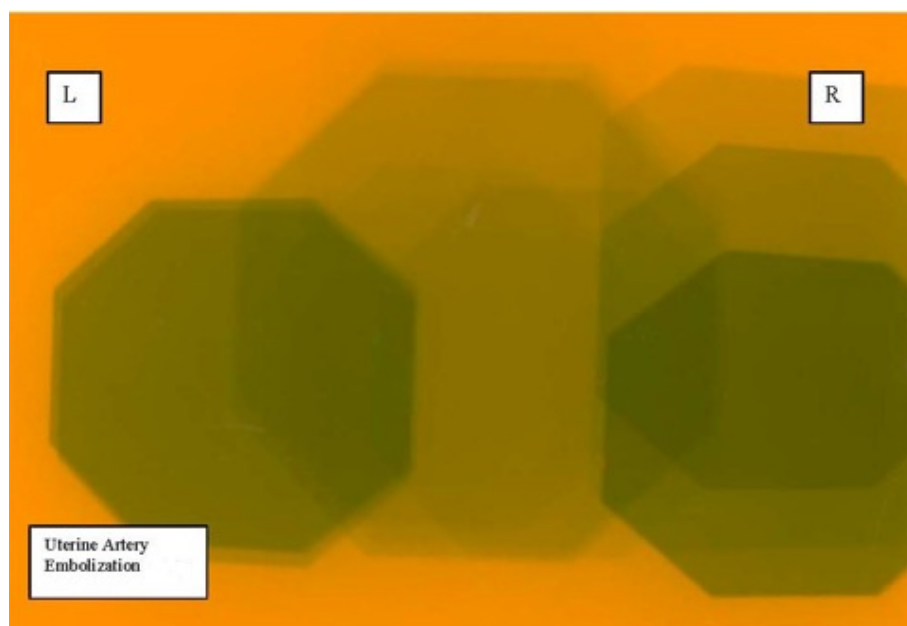


figure 1. an exposed film with patient's orientation with respect to the film

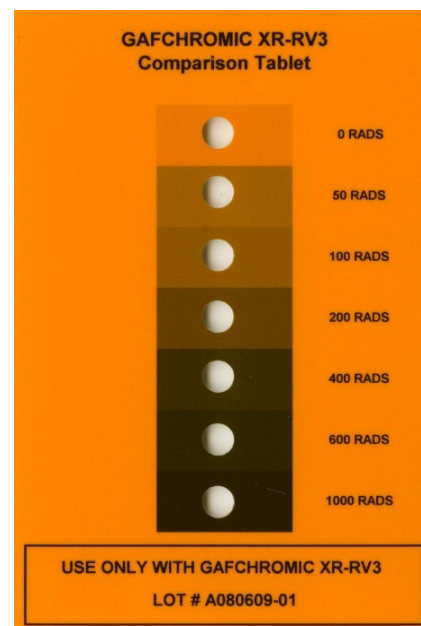


figure 2. comparator strip

procedure

1. The protocol assumes that the patient has undergone the interventional procedure with a sheet of Gafchromic™ XR-RV3 dosimetry film placed close to the surface of the skin exposed to the radiation (Figure 3.). Common practice is not to put the film in direct contact with the skin, but separated by one or more sterilized surgical sheets. The film must be marked to indicate its orientation with respect to the patient, i.e. left-right, head-foot as indicated in Figure 1.
2. Note the lot number on the label of Gafchromic™ XR-RV3 dosimetry film box.
3. Obtain a Gafchromic™ XR-RV3 comparator strip made for the same lot number as the film. (Note: the lot number is printed on the lower part of the comparator strip)
4. Carry out the evaluation in a well-lit area illuminated with white indoor lighting.
5. Place the Gafchromic™ XR-RV3 dosimetry film with the orange side facing up and observe the areas where the film has been exposed. These are the areas where the film color has changed from orange to a shade of gray. The darkness of the exposed areas is an indication of the dose. The darker the film means the higher the dose.
6. Place the Gafchromic™ XR-RV3 comparator strip on the film with the chart facing you.



figure 3. film placed on the couch top with orange side facing up

7. Move the comparator strip around on the film to the areas you would like to evaluate. Observe the film through the holes in the comparator strip and make an evaluation of the dose or dose range. If the film is lighter than the printed area surrounding the hole on the comparator strip, that is an indication that the dose to the film was less than the given dose for that step on the strip. If the film is darker than the printed area surrounding the hole on the comparator strip, that is an indication that the dose to the film was greater than the given dose for that step on the strip. Please see an example in Figure 4.

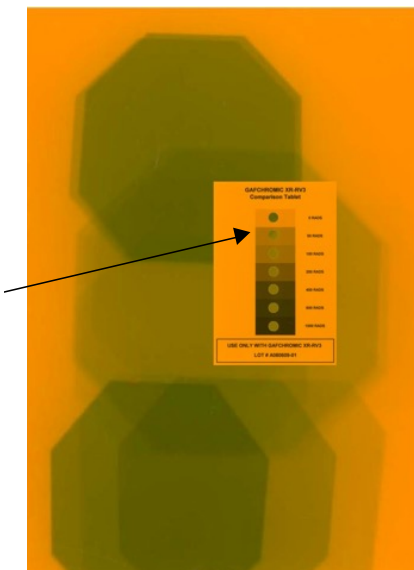


figure 4a

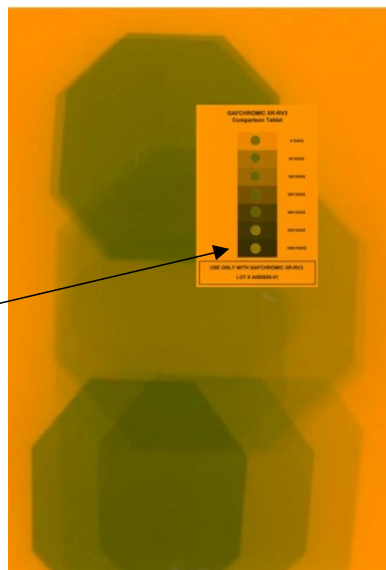


figure 4b

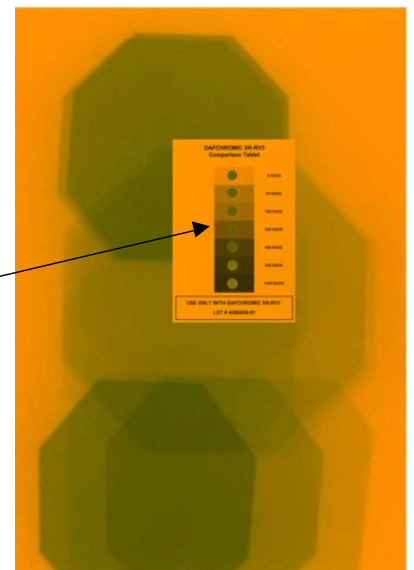


figure 4c

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