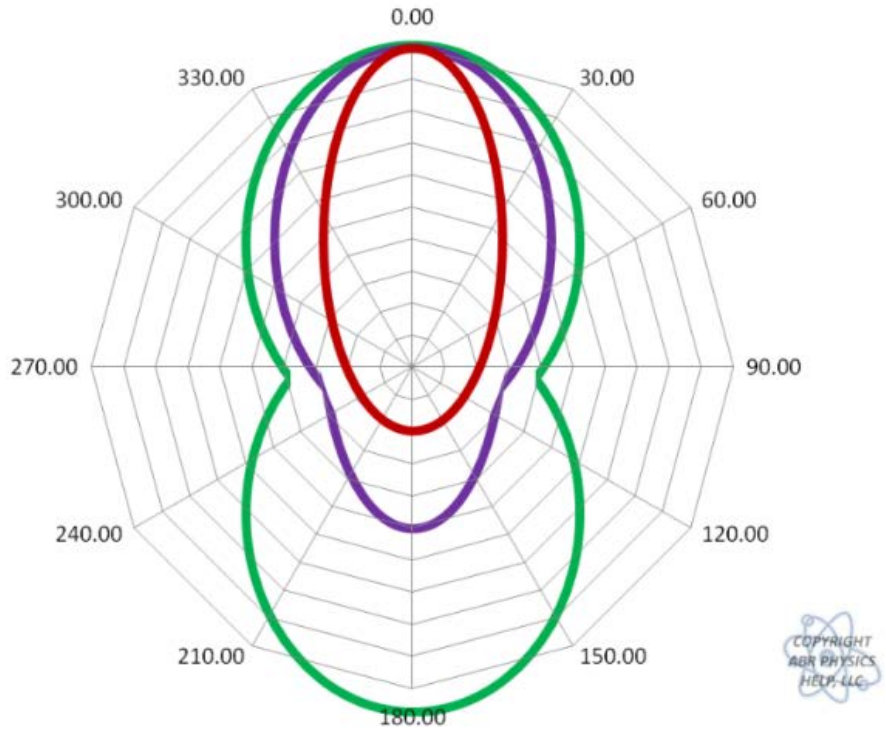
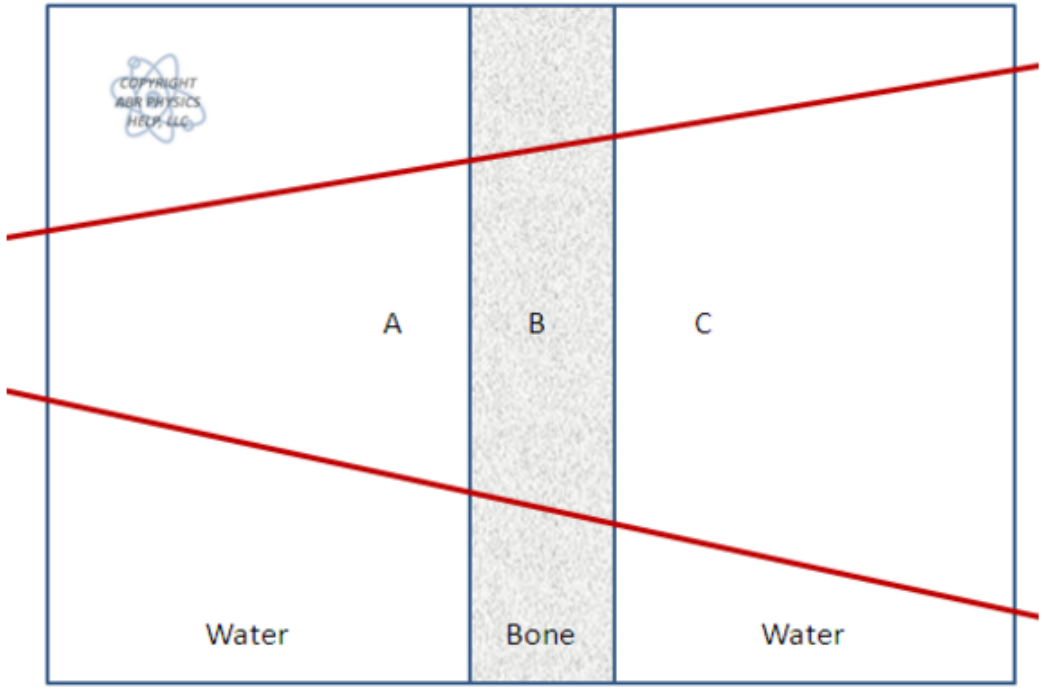
Please indicate which color scattering curve belongs to 2 MeV photons.



- Red
- Purple
- Green

Compared to a homogenous water phantom, the dose at point C will be?



- Higher
- Lower

Which of the following megavoltage photon energies would most likely demonstrate the largest penumbra?

- 10 MV
- 20 MV
- 18 MV
- 6 MV

In megavoltage beams, as the field size increases the surface dose decreases.

- True
- False

In order to apply %DD curves that were measured at 100 cm SSD to another SSD, one should...?

- Utilize the Mayneord F-factor
- Correct for the change in effective field size
- Do nothing as %DD curves apply at all SSD's
- Use the inverse square relationship

As the photon energy increases which of the following also increases?

- Depth of d_{max}
- Surface dose
- Treatment plan heterogeneity corrections
- Treatment plan hot spots
- Treatment plan uniformity

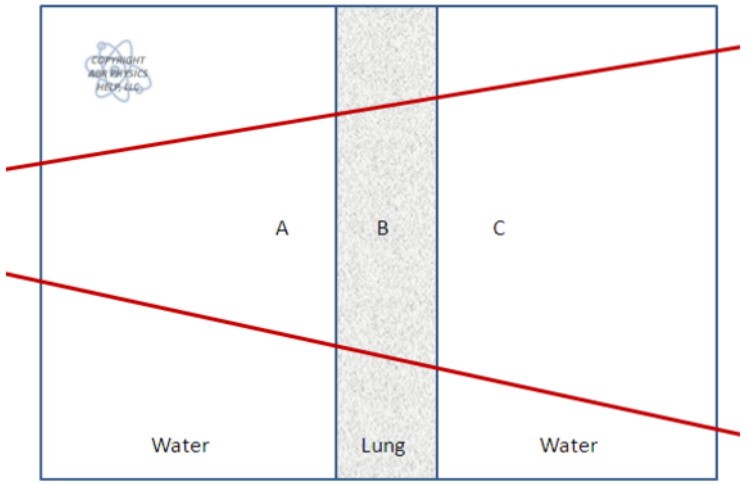
Which of the following statements regarding megavoltage %DD curves is false?

- As the SSD increases the %DD curve increases
- As the field size increases the %DD curve decreases
- As the field size increases the surface dose increases
- %DD curves incorporate inverse square, attenuation and build-up components

Which of the following megavoltage photon energies would most likely demonstrate the largest penumbra?

- 20 MV
- 18 MV
- 10 MV
- 6 MV

Compared to a homogenous water phantom, what do you expect the dose at point B to be?



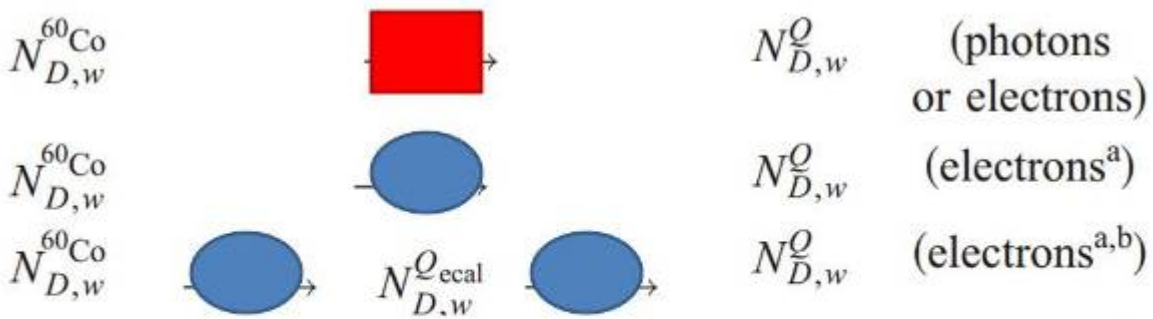
- Higher
- Lower

When we are attempting to perform a heterogeneity corrected calculation for 6 MV photons, which of the following parameters would be most useful?

- The number of electrons per gram of the material
- The number of electrons per cubic centimeter of the material

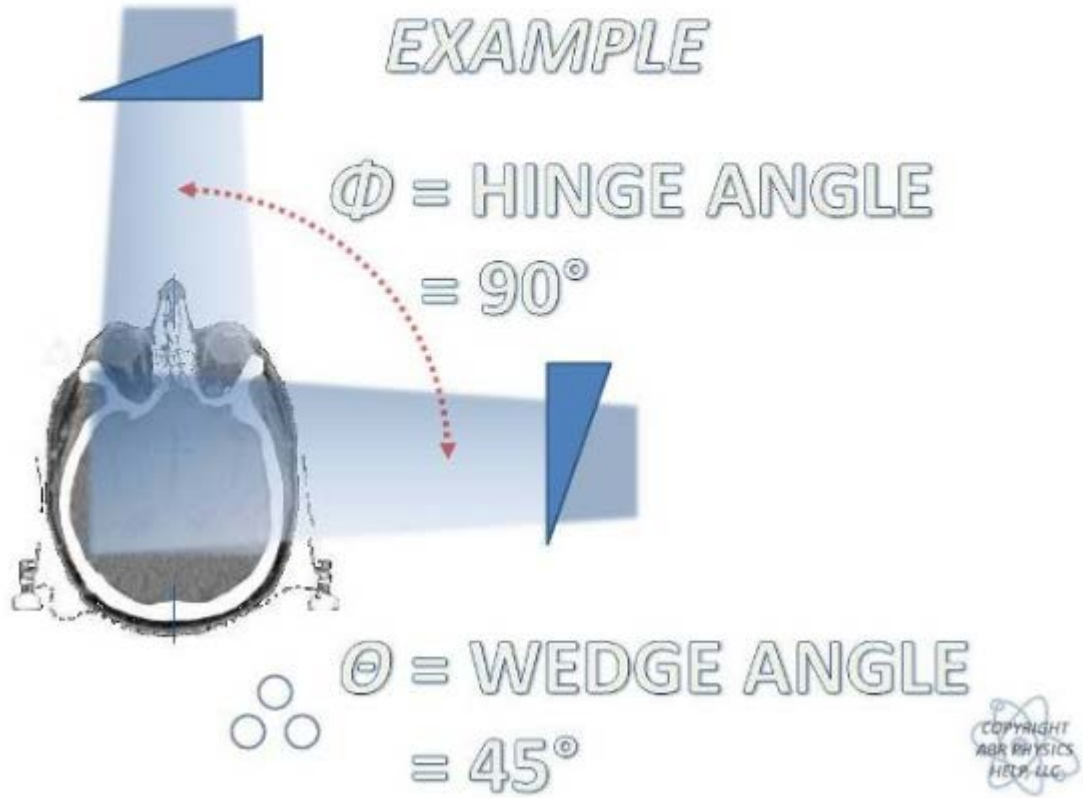
Which of the following is not an advantage of megavoltage beams compared to kilovoltage beams.

- Decreased bone dose
- Faster establishment of CPE
- Skin Sparing
- Increased penetration



Source: Almond, *et al.* AAPM's TG-51 protocol for clinical reference dosimetry of high-energy photon and electron beams.
Author: Almond, *et al.*

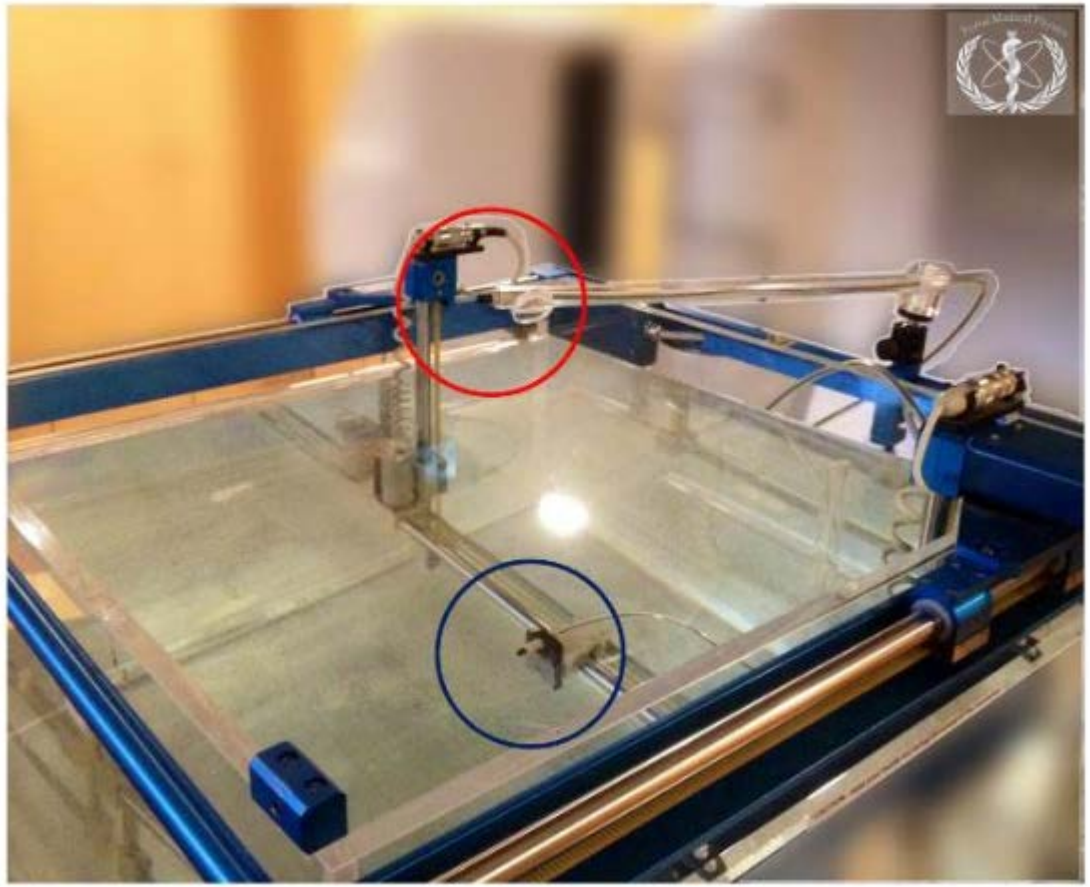
Will the patient shown here experience skin sparing with the use of this wedge?



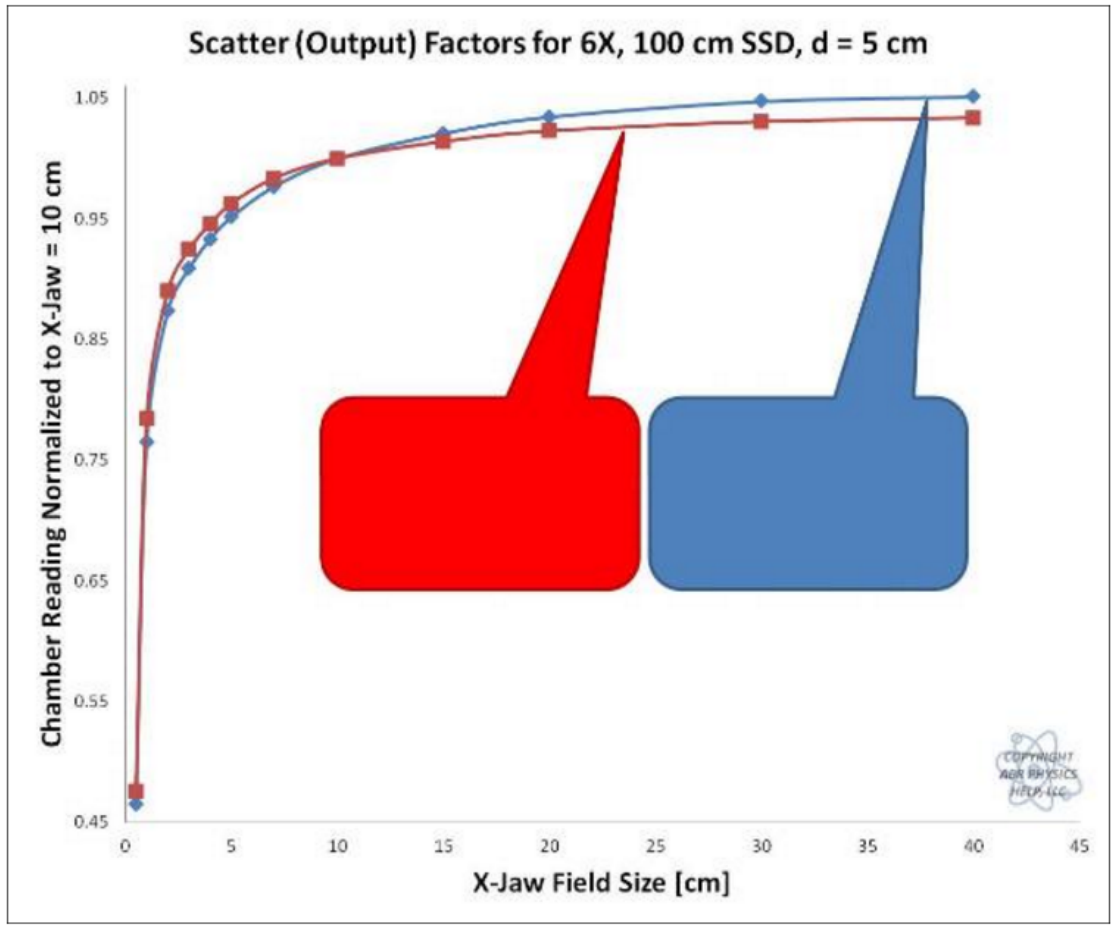
When measuring $S_{c,p}$ for megavoltage photon fields, at what depth in water should your chamber be placed? (Choose the best answer)

- 10 cm
- 5 cm
- Depth of maximum dose
- Reference depth

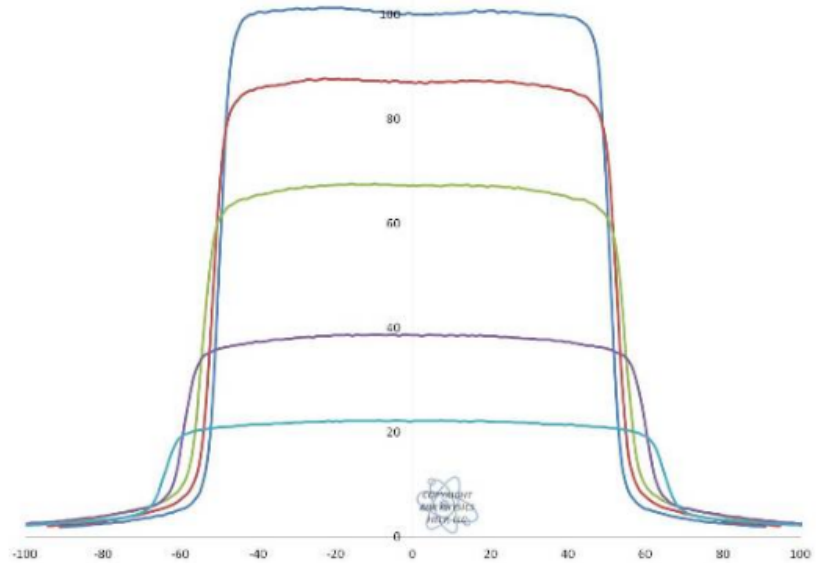
What is the purpose of the object circled in red in this image and setup?



Two scatter factor plots are shown here taken with a CC04 ionization chamber at 100 cm SSD for a 6X beam both with the chamber at a depth of 5 cm. In each case, the X-jaw was allowed to vary from 0.5 cm to 40 cm while the Y-jaw remained constant. The two curves presented here were taken for two different values of Y-jaws. Click on the *colored label* that corresponds to the curve with the *largest* Y-jaw separation.

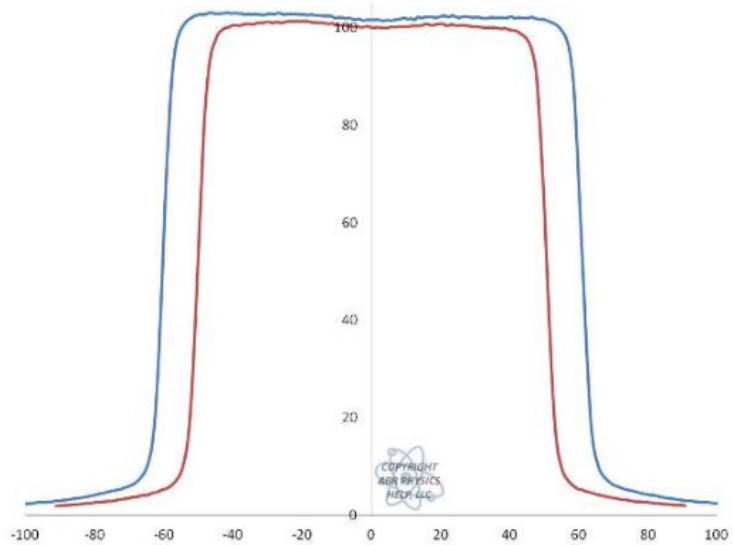


In the following graph, which variable listed below is most likely changing allowing us to produce the five different plots shown? (Note that the readings are normalized to a 10x10 cm^2 field size with a chamber at a depth of d_{max}).



- Field Size
- MU/min during acquisition
- Depth
- SSD

In the following graph, which variable listed below is most likely changing allowing us to produce the two different plots shown? (Note that the readings are normalized to a 10x10 cm^2 field size with a chamber at a depth of d_{max}).



- Field Size
- SSD
- Depth
- MU/min (during acquisition)

Which of the following would not be an appropriate detector for measuring a beam profile in commissioning beam data collection:

- A Scanning Diode
- A Piece of Radiochromic Film
- A Farmer Scanning Chamber
- A Diamond Detector

TG-142 recommends checking the profile of dynamic wedges with what frequency?

- Daily
- Monthly
- Quarterly
- Annually

According to TG-40, the source calibration on an HDR remote afterloader should be checked with what frequency?

- Quarterly
- Annually
- Daily
- Monthly

According to TG-40, when using TLD for absolute dosimetry how often should a calibration be performed.

- Each batch
- Monthly
- Each use

TG-142 recommends that for a machine treating SRS patients, that the ODI accuracy be within _____ mm during daily QA.

TG-142 recommends that both photon and electron beam energy be checked on a monthly basis.

- True
- False

Performing star shots for the gantry, collimator, and couch is just as good a test as performing a Winston Lutz test at a combination of those.

- True
- False

According to TG-40, a barometer being used for pressure corrections during reference dosimetry should be cross referenced every [ ] months.

TG-142's recommended monthly tolerance for gantry and collimator angles is...?

- 1 degree (IMRT) / 0.5 degrees (SRS/SBRT)
- 0.1 degrees
- 1 degree
- 0.5 degrees

Monthly profiles are expected to be within 1% of expected baseline values according to TG-142.

- True
- False

The monthly specification for output constancy with dose rate from TG-142 is 2%.

- True
- False

According to TG-142 when examining MU linearity during an annual for fields delivering greater than 5 MU linearity should be within what?

- 5%
- 1%
- 3%
- 2%

TG-142 recommends that all imaging installed on a machine being used for IMRT or SRS be able to position the patient accurately within 1 mm.

- True
- False

According to TG-40, a remote afterloading HDR unit should be capable of positioning the source within _____ mm and timing dwell positions with an accuracy of ____%.

- 2 / 1
- 1 / 2
- 0.5 / 1
- 1 / 1

According to TG-40, when using film for absolute dosimetry, with what frequency should calibration be performed?

- Each use
- Each batch
- Monthly

According to TG-142, during annual QA electron and photon outputs should be within _____ % of expected values.

TG-142's monthly tolerance for MLC leaf speed is that leaves that demonstrate more than a _____ decrease in speed should have their motors replaced.

- 0.1 cm/s
- 1 cm/s
- 0.5 cm/s
- 5 cm/s

TG-142's monthly test for dynamic wedges involves measuring the wedge factor at the central axis. It recommends that the tolerance for this test be 3% that expected.

- True
- False

According to TG-40, a thermometer being used for temperature corrections should be checked for accuracy every year.