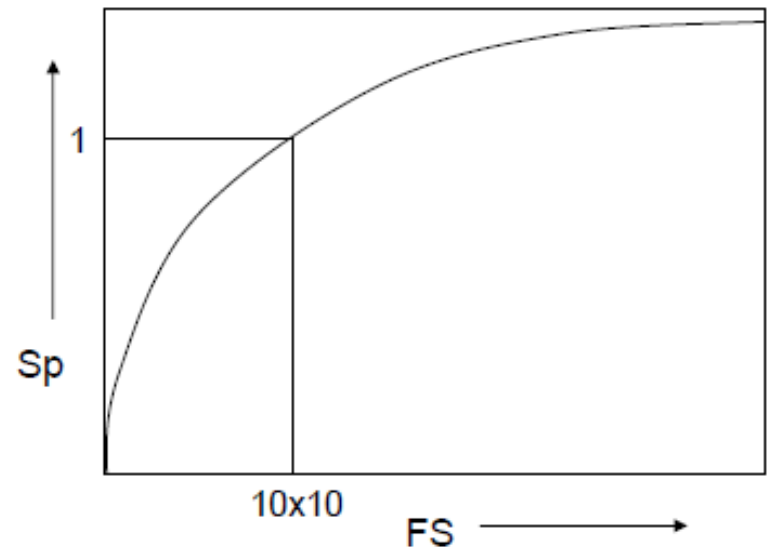
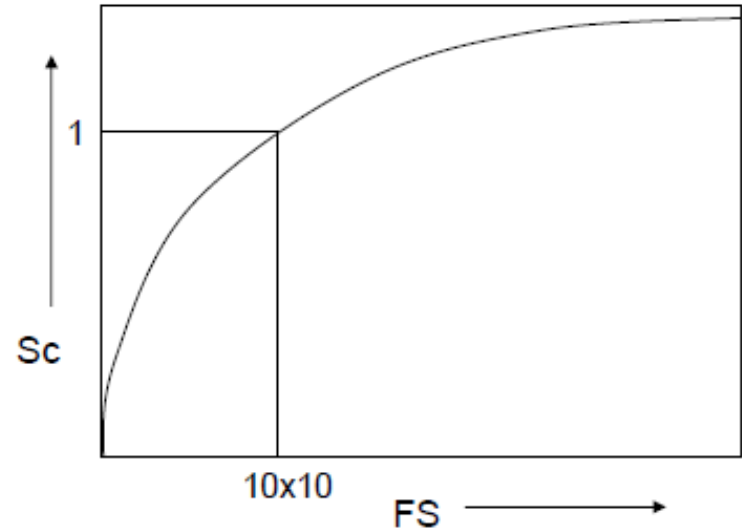


MU calculations

What do the graphs below show?

- What is the trend with field size and why?
- How do you measure Sc ? Sp ?
- How do you use Sc and Sp ?
- How does Sc change for FFF fields?



- Collimator scatter

- $S_c(r_c) = \frac{\text{output}_{air}(r_c)}{\text{output}_{air}(r_0)}$

- Dominated by FF

- $\uparrow S_c$ with \uparrow Field size

- More scatter
- Less backscatter to MU chamber

- r_c = collimator field size, defined at iso

- Collimator exchange effect (<2%)

- Phantom scatter

- $S_p(r_d) = \frac{S_{cp}(r_d)}{S_c(r_d)} = \frac{BSF(r_d)}{BSF(r_0)}$

- $\uparrow S_p$ with \uparrow Field size

- r_d = blocked field size at calculation depth (SAD) or at normalization depth (SSD)

- May be $< r_c$ with flash or tertiary blocking
- May be $> r_c$ with extended SSD
- Must scale r if calculation depth not at r_0

What kind of treatment is shown in the image?

- What information would you need to calculate the MU?
- What MU would you expect for 2 Gy/fraction?
- How would the MU change if:
 - The patient's head became thicker?
 - If you were treating at 110 cm SSD?

