

MULTIPLE CHOICE

INTENSITIES - PRACTICE SET

PROPOSED FOR REVIEW - questions are the author's verbatim Q&A; distractors are auto-selected from other answers in the same bank and must be checked by a subject-matter reviewer (a distractor could coincidentally be correct). Not authoritative assessment content.

1. Intensity is reported with respect to which two dimensions?

- A. Gain and dynamic range
- B. Time and space
- C. Amplitude and power
- D. Frequency and wavelength

2. In what area of ultrasound physics are different intensity measurements especially important?

- A. Image annotation
- B. Gray-scale mapping
- C. Bioeffects
- D. Scan conversion

3. What abbreviation means spatial peak, temporal peak intensity?

- A. SPTP
- B. SATP
- C. SPTA
- D. SATA

4. What abbreviation means spatial average, temporal peak intensity?

- A. SPTA
- B. SATA
- C. SATP
- D. SPTP

5. What abbreviation means spatial peak, temporal average intensity?

- A. SATA
- B. SATP
- C. SPTP
- D. SPTA

6. What abbreviation means spatial average, temporal average intensity?

- A. SPTP
- B. SPTA
- C. SATP
- D. SATA

7. What abbreviation means spatial peak, pulse average intensity?

- A. SAPA
- B. SPPA
- C. SPTP
- D. SPTA

8. What abbreviation means spatial average, pulse average intensity?

- A. SATP
- B. SATA
- C. SPPA
- D. SAPA

9. Which intensity is most relevant when evaluating tissue heating?

- A. SPTP
- B. SATP
- C. SAPA
- D. SPTA

10. What units are used for intensity in ultrasound physics?

- A. Watts per centimeter (W/cm)
- B. Watts per square centimeter (W/cm^2)
- C. Decibels per centimeter (dB/cm)
- D. Cycles per second (Hz)

11. Which listed ultrasound intensity has the highest value?

- A. SPTA
- B. SPTP
- C. SPPA
- D. SATA

12. Which listed ultrasound intensity has the lowest value?

- A. SATA
- B. SPPA
- C. SPTA
- D. SPTP

13. What is another term for beam uniformity coefficient?

- A. Attenuation coefficient
- B. SP/SA factor
- C. Thermal index
- D. Duty factor

14. What term describes the spread of beam intensity in space?

- A. Beam uniformity coefficient
- B. Pulse repetition frequency
- C. Attenuation coefficient
- D. Duty factor

15. What are the units of the SP/SA factor?

- A. Decibels/cm
- B. Hertz
- C. $Watts/cm^2$
- D. Unitless, with a value of 1 or greater

16. What describes the relationship of pulsed beam intensity with time?

- A. Duty factor
- B. Impedance ratio
- C. Attenuation coefficient
- D. Beam uniformity coefficient

17. True or False? Duty factor is a unitless number between 0 and 10.

- A. True
- B. False

18. True or False? Pulse average and temporal average intensities are the same for continuous wave ultrasound.

- A. True
- B. False

19. Which sequence ranks these intensities from smallest to largest?

- A. SPTP < SPPA < SPTA < SATA
- B. SATA < SPTA < SPPA < SPTP
- C. SPTA < SATA < SPTP < SPPA
- D. SPPA < SPTP < SATA < SPTA