tissue and f is the ultrasound frequency. While an MI less than 0.7 generally means that no cavitation may occur, cavitation is largely only a concern in tissues where cavitation is real possibility—only tissues with embedded gas bodies may cavitate. Since deep tissue injuries are largely focused around the sacrum and heels of tissue, the effects of cavitation in ARFI imaging are not largely relevant.

$$MI = \frac{P_r}{\sqrt{f}} \tag{4.16}$$

Maximizing the forces developed in the tissue can be detrimental to that tissue's health and well-being. To investigate this, the spatial peak pulse average intensity (I_{SPPA}) of the acoustic body load simulations was calculated for the range of depths and frequencies investigated in Fig. 4.4 and is shown in Fig. 4.8. Based on a maximum I_{SPPA} exposure of $933\,\mathrm{W\,cm^{-2}}$ [96], the use of ultrasound probes operating at or above 1 MHz and focused at depths greater than 3 cm should be safe for use in examining deep tissue injuries which are generally well separated from the much more sensitive cardiovascular and fetal imaging.