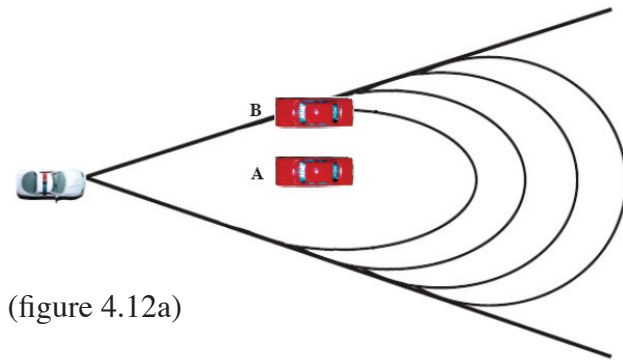


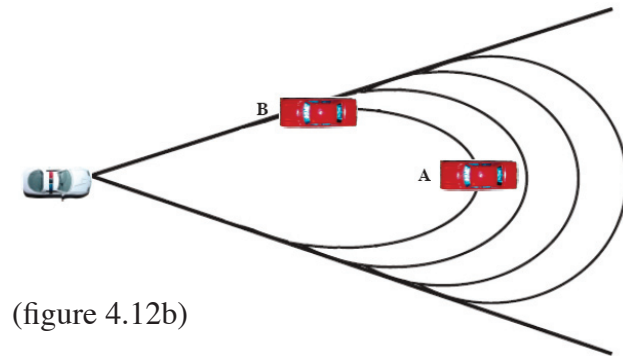
4.12 Contour Lines of Equal Sensitivity

The contour lines of equal sensitivity rule states that the strongest reflected signal is determined by the location of the target vehicle to the center axis of the main power beam. To better understand contour lines of equal sensitivity it is helpful to review all beam reflection rules. The inverse square rule demonstrated that the distance from the radar determined the strength of the reflected signal. We also learned from lines of equal sensitivity that two vehicles of equal size, located at an equal distance from the axis of the main beam, will reflect a radar signal equally. However, if two identical vehicles are positioned so that one vehicle is located directly on the center axis of the main power beam and one vehicle is located at the edge of the radar beam, the vehicle located on the axis will reflect the stronger signal. In figure 4.12a, vehicle A will reflect the strongest signal since it is located on the main power axis and vehicle B is located at the edge of the radar beam. In fact the reduction in reflectivity from vehicle A to vehicle B is 50%. (Remember half-power point beam rule.)



(figure 4.12a)

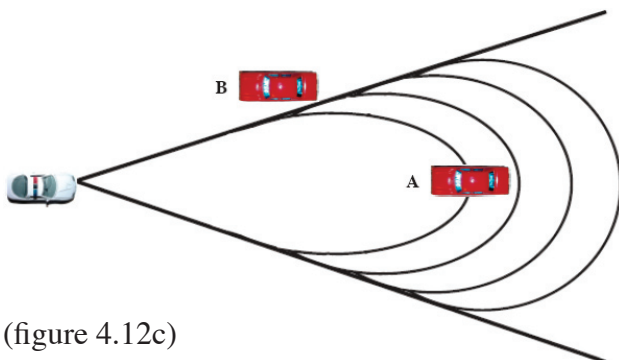
Contour lines of equal sensitivity appear as cigar shaped areas of sensitivity within the radar beam. A vehicle of equal size will reflect the radar beam with equal strength when located upon a single contour line of equal sensitivity. In other words, vehicles located on the main power axis will reflect a radar beam of equal strength to a much closer vehicle located perpendicular to the main power axis. In figure 4.12b, vehicle A and vehicle B will reflect the radar signal with equal strength because they are located on the same contour line of equal sensitivity. Therefore, it is possible for the radar to display a target vehicle speed for a vehicle that is further from the radar. This phenomenon is more likely to occur on multi-lane highways and on roads with a center divider.



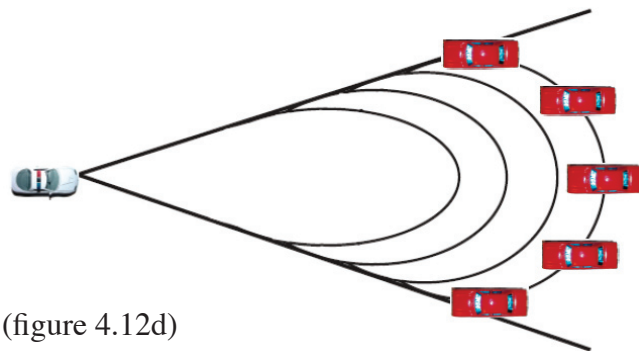
(figure 4.12b)

Figure 4.12c represents vehicle B traveling on the outside lane and vehicle A traveling on the inside lane. Although vehicle A is the farthest vehicle, it is traveling directly upon the main power axis of the radar beam. Vehicle A will reflect a stronger signal, even though vehicle B is closer. In fact, vehicle B is outside the main power beam while vehicle A is further but located on the main power axis.

Figure 4.12d represents 5 identical vehicles traveling on a single contour line of equal sensitivity. All of these vehicles will reflect the radar beam equally. Contour lines of equal sensitivity applies in both the stationary and moving mode. Michigan v. Ferency (pages 132-133) is an important court case dealing with contour lines of equal sensitivity.



(figure 4.12c)



(figure 4.12d)