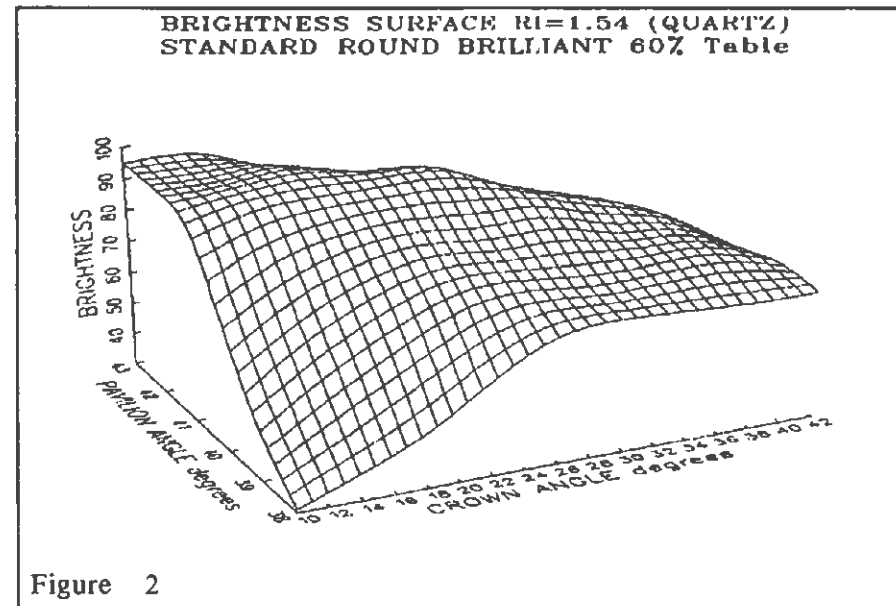
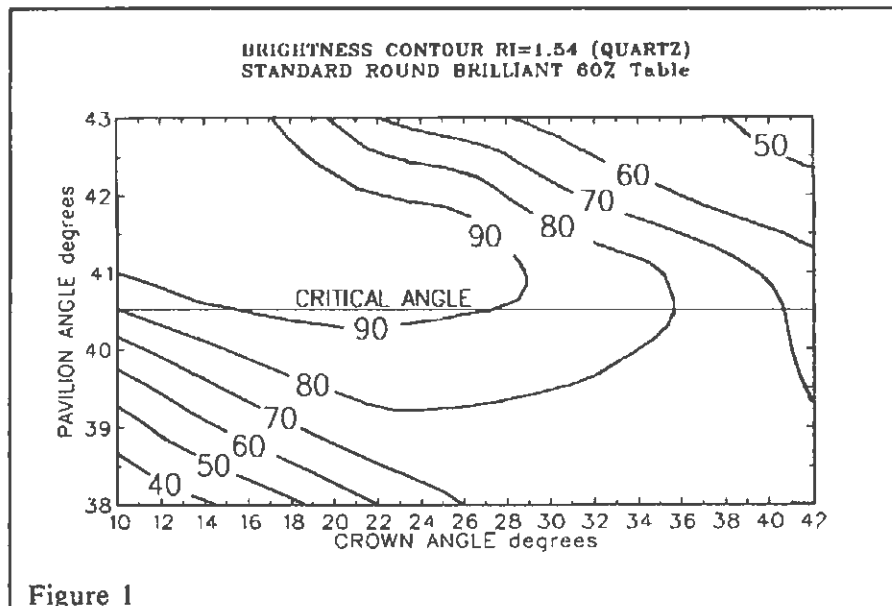


# SEATTLE FACETOR DESIGN

August 1989



## EFFECT OF TABLE SIZE IN A SRB DESIGN

Computer generated BRIGHTNESS PATTERNS offer a means for comparing different facet designs. In previous SFD issues we have considered the SRB with a 50% Table in various materials. Here we consider the SRB with a design change that gives a 60% Table. Figure 1 is a BRIGHTNESS CONTOUR diagram and Figure 2 is the corresponding BRIGHTNESS SURFACE diagram. These two diagrams are showing exactly the same data Figure 1 in 2D and Figure 2 in 3D. Highest brightness values are a combination of low crown angle and pavilion angle above the "critical angle" (for Quartz this is 40.5 degrees). To search for "the Brightest" we need consider only the angle combinations to the left of the "90 contour" line in Figure 1 (or the "bump" in the surface near pavilion angle 41.5 and crown angle 24 degrees in Figure 2).

Figure 1 should tell you that a very high brightness penalty will be paid if a 39 degree pavilion is used, but 41, 42, and 43 degree

pavilion are promising. To compare the 50% Table SRB with the 60% Table SRB we provide Figures 3 and 4 (page 2). The curve for the 60% Table design is obtained by plotting the Average Brightness against Crown Angle (degrees) at constant Pavilion Angle. Figure 3 is for a 41 degree pavilion, whereas Figure 4 is for a 43 degree pavilion. This is equivalent to taking a slice parallel to the Crown Angle axis thru the Figure 1 contour diagram. By plotting the corresponding 50% Table SRB data on the same plot as the 60% Table data, we get a direct comparison of the effect of Table size. Note in Figure 3, the Brightness vs Crown Angle curve are nearly identical. We interpret this to mean that WITH A 41 DEGREE PAVILION THERE IS ALMOST NO DIFFERENCE BETWEEN 50% AND 60% TABLE SIZE.

With a 43 degree pavilion, the 50% Table design is more adversely affected by high crown angles than is the 60% Table design. If "Brightness" is the criterion, this analysis supports the choice of a 41 degree Pavilion with crown angles from 14 to 26 degrees and no clear