

## CHAPTER 5

### CONCLUSION AND SUGGESTION

One of the most important challenges facing gem dealers is how to describe the color of rubies and blue sapphires and to categorize them. The most important problem found in trying to develop an effective ruby and blue sapphire grading language is the lack of understanding among gem dealers about color terminology as used by color scientists. The present research proposed an approach of color communication system to link the color systems that specify ruby and blue sapphire, including a specific color names used in color grading, namely "Dark Red", "Deep Red", "Vivid Red", "Strong Red", "Purplish Red", and "Pinkish Red" for ruby, and "Dark Blue", "Deep Blue", "Vivid Blue", "Strong Blue", "Purplish Blue", and "Greenish Blue" for blue sapphire.

It was shown that the CIE 1976  $u' v'$  uniform chromaticity scale diagram at different lightness was appropriate to classifying the fine grade of color quality classification of ruby and blue sapphire. The lightness of ruby was found to be either of the four levels,  $L^*=20.54, 30.77, 41.22$  and  $51.57$ . At the lightness  $20.54$  we obtained the "Dark Red" and "Deep Red" ruby classification, at  $30.77$  the "Deep Red" ruby classification, at  $41.22$  the "Deep Red" ruby classification, and at  $51.57$  the "Vivid Red" and "Pinkish Red" ruby classification. The lightness of blue sapphire was found to be either of the two levels of the lightness,  $L^*=20.54$  and  $30.77$ . At the lightness  $20.54$  we obtained the "Dark Blue", "Deep Blue", "Vivid Blue", "Strong Blue" and "Purplish Blue" blue sapphire classification, and at  $30.77$  the "Vivid Blue" and "Strong Blue" blue sapphire classification.

We plotted the colors of ruby and blue sapphire on the CIELAB color system as already shown in Fig. 4.7 through 4.30. The values  $L^*, a^*$  and  $b^*$  of ruby were  $23.09, 40.33, 8.74$  from the "Dark Red",  $29.88, 44.82, 10.73$  from the "Deep Red",  $29.93, 48.90, 11.60$  from the "Vivid Red",  $33.72, 51.53, 6.54$  from the "Strong Red",  $37.37, 52.07, 2.22$