

SOURCE: Japan
TITLE: SCIF on a square pixel display
PURPOSE: Information

1. Introduction

Each pixel of an intended common picture format SCIF, 576 lines and 720 pixels, has a non-square pixel aspect ratio, which is 15(V):16(H). This non-square pixel causes some geometric distortion of the picture when it is showed on a display with square pixels. This paper shows the distortion caused by the non-square pixel is not negligible from the view point of the human eyes' sensitivity.

2. Simulation and Results

Fig.1 shows the simulated two pictures on a display with square pixels, 1:1. The source data has an aspect ratio of 15(V):16(H). Fig.1-a is a compensated one by a digital filter so that the picture reserves the original shape. Fig.1-b is a non-compensated one.

3. Conclusion

Geometric distortion is clearly visible if the SCIF picture is displayed on a square pixel device without proper compensation. It is concluded that the human eye can distinguish the 6% geometric distortion. Displays for many applications such as a multimedia might have square pixels. We need to pay some attention to this type of compensation when we define a common picture format. Picture formats with square pixels are preferable for these applications, though.



Fig.1-a



Fig.1-b