

Discussion on effect of observation circumstances for image in digital radiography

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The discriminability of the IQI in the film radiography is affected by the observation circumstance and the luminance of film viewer. It is specified that the images of digital radiograph shall be examined at a dimmed room in ISO17636-2. However, it is not described both of the detailed applying of observation circumstances and the adjusted image display in digital radiography. In this report, the welded steel specimens of 25mm and 50mm were used to investigate how differences in brightness and darkness which the number of display pixels affect the displayed image. For the Digital Radiographic testing (RT-D), the basic spatial resolutions (SRb) were obtained by measuring the profile and applying of visual observation with the duplex wire type of image quality indicator (IQI). On the other hand, when observing the image of wire type of IQI, the observation ways that one was obtain the perceptible image for all wires and another was to get the perceptible single wire image by using a mask for observing each wire were applied. Moreover, in order to investigate the influence on discriminability of the wire, the adjustment of window width (WW) and window level (WL) has been done. As a result, it was confirmed that the discriminability in a dimmed room and the adjustment of WW and WL were effective. In addition, it was cleared that an application of mask was effective for accurate IQI discrimination in the observation of image. The measurement of SRb was not affected by the observation circumstances when profiling was used, but the visual observation was affected by the circumstances it was found that the lower SNRN image, namely, the lower contrast image was the greater influence of the WW and WL adjustment influenced for the discriminability in case of observation of image at the dimmed room in the RT-D.