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The paper presents a new approach to the analysis of the Spatial Light Modulator based holographic display. Two major aspects are covered: imaging and viewing. The analysis of these aspects employs joint space-spatial frequency representation. Based on the WD analysis we derive formula for spatial evolution of space bandwidth product (resolution and field of view). The aliased imaging is studied as well. This provides valuable extension of the display field of view. All of the results are proven experimentally.

The holographic image WD representation analysis is extended to cover effect of visual perception. Angular resolution and field of view of human observation of reconstructed image are theoretically examined. Both monocular and binocular perception are studied. With the results we can predict how a human perceives holographically reconstructed scene. Moreover presented analysis can be easily extended to study multi SLM holographic display configurations. Given conclusions are accompanied with experimental results.

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