

A radial-symmetric checkerboard stimulus obeying the inverse-linear cortical magnification law

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Human primary visual areas are retinotopically organized, with cortical area for any visual field location decreasing in size with distance from the visual field centre. The decrease is surprisingly well described by an inverse-linear function of retinal eccentricity. Relatedly, locations of these areas on the cortical map follow a logarithmic distance rule from the retinotopic centre (Strasburger, *Vision Res.* 194, 2022, 107972). Visual checkerboard stimuli for assessing retinotopy in fMRI or mfVEP, in order to provide equal stimulation across the stimulated visual field, are designed to counter the decrease by increasing checkerboard patch sizes with eccentricity. Patch sizes thus need to follow the inverse of the logarithmic rule, i.e. increase exponentially with eccentricity. Here, we present the equation for the stimulus' exponential increase to precisely counteract empirical estimates of the cortical area decrease.

Keywords: Retinotopy, fMRI, mfVEP, cortical map, cortical magnification, logarithmic rule