WK29. Grating-Evoked Cortical Potentials and Perceived Contrast. HANS STRASBURGER, WOLFGANG SCHEIDLER, AND INGO RENTSCHLER. Institute for Medical Psychology, University of Munich, Schillerstr. 42, 8000 München 2, Federal Republic of Germany.—Unlike subjective perception of contrast, steady-state evoked cortical potentials (VEP’s) elicited with counterphased gratings may vary abruptly with changes in spatial frequency.¹ To avoid possible artifacts we developed a digital fast-sweep technique for investigating this discrepancy. In most of our 13 subjects, at high stimulus contrasts the dependency of VEP amplitude on spatial frequency had two pronounced peaks separated by a sharp notch at around 3 cycles per degree. With decreasing contrast these variations leveled out, and a unimodal response function was obtained at low contrast. A linear relationship between log contrast and VEP amplitude² was found for any given spatial frequency only in the low-contrast range. With increasing contrast the VEP amplitude saturated at a rate that depended clearly on spatial frequency, with a nonmonotonous dependency occurring at intermediate spatial frequencies. The latter phenomenon of oversaturation apparently gave rise to the above-mentioned bimodal response characteristic. Results of a careful analysis of VEP phase lags are added.

¹ C. W. Tyler et al., Brain Res. 33, 535 (1978).