

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).

² F. W. Campbell and L. Maffei, *J. Physiol.* **207**, 635 (1970).