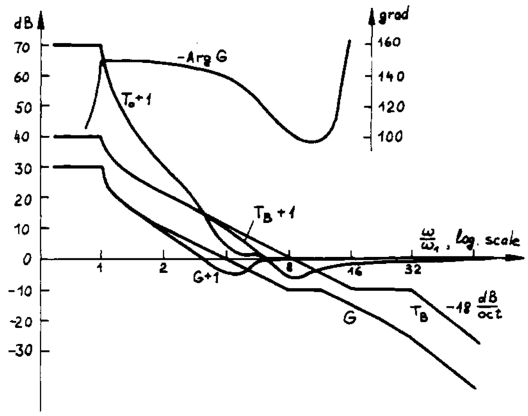

Fig. 3.

When a much stringent requirement Re $(T_e + 1) > 0$ is imposed which is sufficient [4] and necessary [3] for the output process stability (PS), the responses of Fig. 3 can be of use. Now, with 20 lg $|T_e| = 10$ dB over the working band, and $G = T_B$, the attained feedback of 50 dB is much greater than the maximum available feedback in the PS single-loop system (10 dB) and even larger than the available feedback in the AGS (not PS) single-loop system (40 dB). It is noteworthy, in passing, that band-pass transformed responses of Fig. 3 remain satisfying the conditions of AGS and PS (contrary to the single-loop system where Popov criterion requires reducing the feedback the larger the smaller relative bandwidth is).

We conclude that if Popov criterion is used as the basis for design and the available feedback in a single-loop system without NC is fairly large, then utilizing the NC increases the available feedback significantly. The corrector should be recommended for use in wide-band feedback amplifiers and feedback systems with high dynamic accuracy.

References

[1] H. W. Bode, *Network Analysis and Feedback Amplifiers Design.* New York: Van Nostrand, 1945.
[2] B. J. Lurie, V. M. Belyavtsev *et al.*, "Nyquist-stable linear amplifier," *Telecommun. Radio Eng.*, no. 7, 1976.
[3] B. J. Lurie, *Feedback Maximization in Amplifiers.* Moscow: Svyas, 1973 (in Russian).
[4] J. C. Hsu and A. U. Meyer, *Modern Control Principles and Applications.* New York: McGraw-Hill, 1970.

Correction to "A Property of Digital Quadrature Filters"

ENRICO DEL RE

In the above published letter[1] some sign inversion errors appeared. In the first line of formula (3) the second exponential is $e^{j\pi(N-1)/2}$. The hereunder indicated expressions must be inverted:

1) "– sign" and "+ sign" in the two lines after formula (4):
2) "$\overline{H}(e^{j\omega})$" and "$-\overline{H}(e^{j\omega})$" in the following line;
3) "$(-1)^n$" and "$(-1)^{n+1}$" in the eighth and ninth lines after formula (4).

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[1] E. Del Re, *Proc. IEEE* (Lett.), vol. 69, no. 12, pp. 1577–1578, Dec. 1981.

Comments on "The Design of Low-Noise Amplifiers"

RICHARD G. MARTIN

In the above titled paper,[1] equation (10) is incorrect. The equation should read:

$$\text{NF} = 10 \log_{10} \left[\frac{(S/N)_{\text{in}}}{(S/N)_{\text{out}}}\right].$$

This is probably a typographical error, but I find this mistake common in papers on Noise Figure.

Reply[2] by Y. Netzer[3]

Concerning Mr. Martin' remark regarding my paper[1] on low-noise design, the above formula is indeed incorrect. There also are two additional errors.

1) In the first formula on page 740, β should appear without the square root sign.

2) The sources cited in references [1], [18], [27], [28] should read EDN.

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[1] Y. Netzer, *Proc. IEEE*, vol. 69, no. 6, p. 728, June 1981.
[2] Manuscript received July 15, 1981.
[3] Y. Netzer is with Honeywell EOO, Lexington, MA 02173.

Laser-Beam Scanner by Multireflection

KIMIO NAKAGAWA AND YOSHIAKI TAKENOYA

Abstract—A new principle of a laser-beam scanner driven by multireflection method is proposed. The principle would be useful for the design of laser scanning systems. In addition to the fundamental structure we also investigate the improvements of the resolution of the scanner.

I. Introduction

As for laser scanning techniques, there have been the developments of electrooptical and acoustooptical scanning systems [1]. Up to date, the former system is confronted with the problem of electro-optical material, i.e., the electrooptical constant is not large enough to give an adequate deflection angle for laser displays. The latter system is available for widespread application of the scanning system except for a high-resolution color-laser projector. In addition to the above nonmechanical scanners, a moving-mirror scanner allows color-laser displays to be readily implemented with advantages (high-resolution, large deflection angle, and small dependency on temperature and on the wavenumber of laser sources) over nonmechanical scanners [2]. For this reason, most laser display investigators have utilized a moving-mirror technique as a horizontal scanner, in spite of its essential mechanical difficulties and the disadvantage in system size compared with elegant nonmechanical scanners. For these reasons, we propose a new scanning system utilizing multireflection between the two plane mirrors, which performs horizontal scanning by driving the mirror with vertical signal. We also consider the resolution of the system.

II. Fundamental Principle

A laser beam which incidents upon the mirror M_2 at an incident angle θ_i propagates, repeating reflections, in an optical-guide consisted of two mirrors M_1 and M_2 (Fig. 1). Since in this system M_1 makes an

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