"Power system Frequency Deviation Measurement using an Electronic Bridge

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VI. CONCLUSION

The compression of multisines using only the phases as free variables, has important applications. No analytical closed-form method exists as yet to yield optimal or near optimal solutions. A computationally efficient algorithm has been presented which leads to strongly compressed signals (crestfactors of 1.41 compared to 1.67), while maintaining the magnitudes of the spectral components. The method is applicable not only to flat spectrum magnitudes but to any frequency domain energetic distribution.

REFERENCES


can be filtered using a low-pass filter and the difference voltage amplified and measured.

The results showed a linear relationship between frequency deviation and voltage or pulse count over the normal range of power system frequencies. The same instrument along with a variable frequency supply can also be used to measure a capacitance or a resistance.

**REFERENCES**


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**Linear Voltage Controlled Oscillator**

**SISIR K. SAHA AND LAKHMI C. JAIN**

**Abstract**—This paper describes a new sinusoidal oscillator whose frequency of oscillation can be controlled by a controlling voltage. The circuit gives ultra-low distortion and stable output by virtue of an automatic gain control (AGC) loop. The oscillator is useful for the VLF (3-30 kHz) and LF (30 kHz-300 kHz) ranges of operation.

**I. INTRODUCTION**

Sinusoidal oscillators play a very important role in most of the existing electronic systems. These oscillators are widely used in a variety of fields, i.e., instrumentation, control systems, etc. There are many oscillator circuits reported in the literature [1]-[15]. A simple bridge oscillator [5] uses one operational amplifier in conjunction with two capacitors, of which one is grounded. Although these networks are simple, the approach can be troublesome if a very large time period is needed.

This paper presents a novel oscillator circuit whose frequency of oscillation is scaled by resistance ratios and a controlling voltage \(V_f\) such that the frequency of oscillation bears a linear relation with

\[ f = \frac{V_f}{\alpha} \]

where \(\alpha = 3.9 \times 10^{-7}\) and \(\beta = 2.38 \times 10^{-7}\).

Since in the power system the frequency is maintained to within ± 1 percent of its nominal value this circuit is well suited for these applications.

**IV. CONCLUSION**

A very simple frequency-deviation measuring instrument that works on the principle of a two-arm bridge is described. The circuit was fabricated and tested in the laboratory. The results indicate good linearity between frequency deviation and voltage or pulse count over the normal range of power system frequencies.