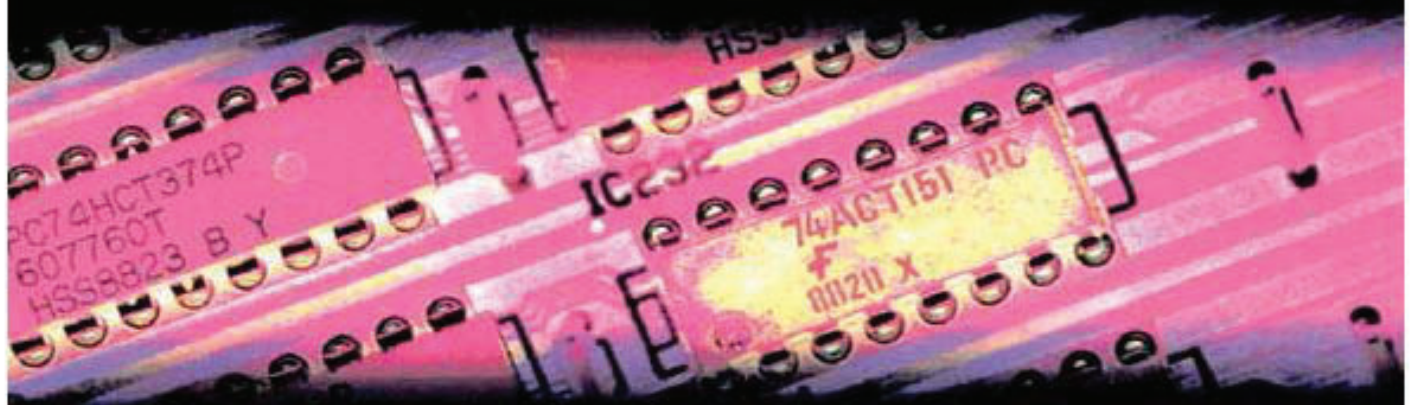


Newnes Dictionary of Electronics



S W Amos
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Valve Exhibit 1094
Valve v. Immersion

Newnes

An imprint of Elsevier Science

Linacre House, Jordan Hill, Oxford OX2 8DP

225 Wildwood Avenue, Woburn, MA 01801-2041

First published 1981

Reprinted 1982, 1986

Second edition 1987

Third edition 1996

Reprinted 1997, 1998

Fourth edition 1999

Reprinted 2000

Paperback edition 2002

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British Library Cataloguing in Publication Data

A catalogue record for this book is available from the British Library

Library of Congress Cataloguing in Publication Data

A catalogue record for this book is available from the Library of Congress

ISBN 0 7506 4331 5

Printed and bound by Antony Rowe Ltd, Eastbourne

For more information on all Newnes publications please visit our website at www.newnespress.com

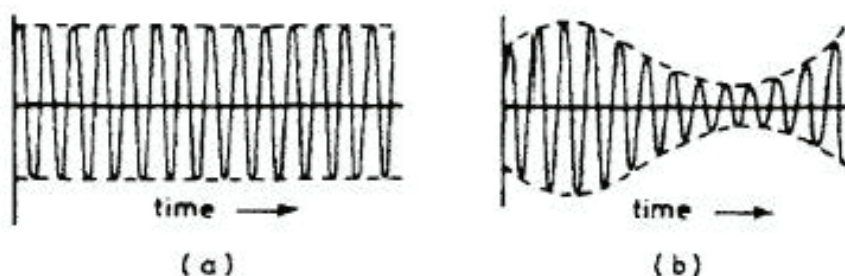


Figure A.6 (a) An unmodulated carrier wave and (b) an amplitude-modulated carrier wave

signal in television broadcasting. In these practical applications the difference between the carrier-wave frequency and the modulating-wave frequency is much greater than suggested in this diagram. It is also possible to amplitude modulate a pulse carrier. See *double-sideband transmission*, *pulse amplitude modulation*, *single-sideband transmission*, *suppressed-carrier transmission*, *vestigial-sideband transmission*.

analogue comparator A device used to check the output of an *analogue-to-digital converter*.

analogue computer A computer that operates on *analogue signals*, i.e. signals of which the significant property can have any value. These values are represented by corresponding values of voltage or current within the computer circuits which then carry out the required mathematical operations on the signals.

Analogue computers employ *operational amplifiers* with *negative feedback* for such operations as multiplication, addition, integration and differentiation. Potential dividers are used for division. Function generators are also needed, e.g. to give trigonometrical ratios. The final result from the computer is displayed on a cathode ray tube or on a chart.

Because of the large degree of negative feedback used with operational amplifiers, their outputs are reasonably accurate but there is inevitably some error (e.g. due to drift) and hence there is a limit to the accuracy of the results from the computer. This is normally of little significance because the inputs fed into the computer are normally from measurements which are themselves subject to error. Where precise accuracy is essential a *digital computer* is used.

analogue device A device which operates on *analogue signals*, e.g. an *analogue computer* or an audio amplifier.

analogue signal A signal, the significant property of which can have any value. The significant property may be the *amplitude*, *phase* or *frequency* of an electrical signal, the angular position of a shaft or the pressure of a fluid. An audio signal is an example of an analogue signal. Signals are often termed analogue where it is necessary to contrast them with digital signals. See *analogue computer*, *digital signal*.

analogue switch A switch with characteristics which make it suitable for use with *analogue signals*. Such signals can have a wide range of voltage and current, and switches for use with them must have values of resistance in the 'on' and 'off' states which are independent of the applied voltage and current. For solid-state analogue switches *field-effect transistors* are often used.