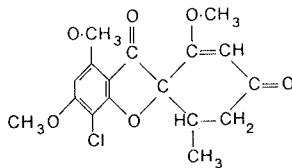
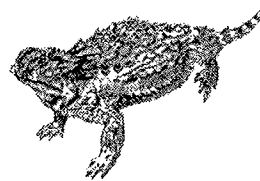
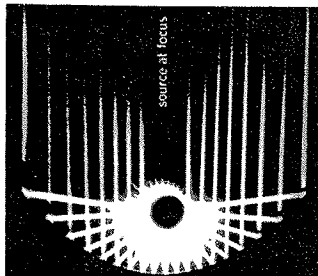


McGraw-Hill DICTIONARY OF SCIENTIFIC AND



32

Q
123
M34
1978

TECHNICAL TERMS

Second Edition

DANIEL N. LAPEDES
Editor in Chief

BAKER BOTTS LLP

FEB 24 2004

HOUSTON LIBRARY

McGRAW-HILL BOOK COMPANY

New York St. Louis San Francisco
Auckland Bogotá Düsseldorf Johannesburg
London Madrid Mexico Montreal New Delhi Panama
Paris São Paulo Singapore Sydney Tokyo Toronto

Included in this Dictionary are definitions which have been published previously in the following works: P. B. Jordain, *Condensed Computer Encyclopedia*, Copyright © 1969 by McGraw-Hill, Inc. All rights reserved. J. Markus, *Electronics and Nucleonics Dictionary*, 4th ed., Copyright © 1960, 1966, 1978 by McGraw-Hill, Inc. All rights reserved. J. Quick, *Artists' and Illustrators' Encyclopedia*, Copyright © 1969 by McGraw-Hill, Inc. All rights reserved. *Blakiston's Gould Medical Dictionary*, 3d ed., Copyright © 1956, 1972 by McGraw-Hill, Inc. All rights reserved. T. Baumeister and L. S. Marks, eds., *Standard Handbook for Mechanical Engineers*, 7th ed., Copyright © 1958, 1967 by McGraw-Hill, Inc. All rights reserved.

In addition, material has been drawn from the following references: R. E. Huschke, *Glossary of Meteorology*, American Meteorological Society, 1959; *U.S. Air Force Glossary of Standardized Terms*, AF Manual 11-1, vol. 1, 1972; *Communications-Electronics Terminology*, AF Manual 11-1, vol. 3, 1970; W. H. Allen, ed., *Dictionary of Technical Terms for Aerospace Use*, 1st ed., National Aeronautics and Space Administration, 1965; J. M. Gilliland, *Solar-Terrestrial Physics: A Glossary of Terms and Abbreviations*, Royal Aircraft Establishment Technical Report 67158, 1967; *Glossary of Air Traffic Control Terms*, Federal Aviation Agency; *A Glossary of Range Terminology, White Sands Missile Range, New Mexico*, National Bureau of Standards, AD 467-424; *A DOD Glossary of Mapping, Charting and Geodetic Terms*, 1st ed., Department of Defense, 1967; P. W. Thrush, comp. and ed., *A Dictionary of Mining, Mineral, and Related Terms*, Bureau of Mines, 1968; *Nuclear Terms: A Glossary*, 2d ed., Atomic Energy Commission; F. Casey, ed., *Compilation of Terms in Information Sciences Technology*, Federal Council for Science and Technology, 1970; *Glossary of Stinfo Terminology*, Office of Aerospace Research, U.S. Air Force, 1963; *Naval Dictionary of Electronic, Technical, and Imperative Terms*, Bureau of Naval Personnel, 1962; *ADP Glossary*, Department of the Navy, NAVSO P-3097.

McGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS
Copyright © 1974, 1978 by McGraw-Hill, Inc. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publishers. Philippines Copyright, 1974, 1978, by McGraw-Hill, Inc.

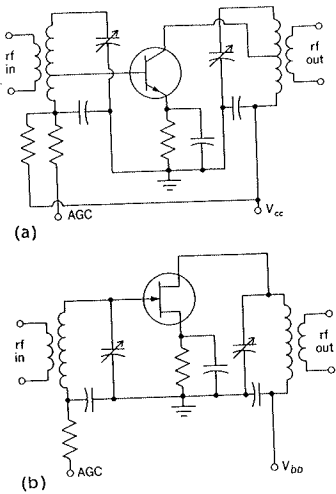
10 9 8 7 6 5 4 3 2 1

Library of Congress Cataloging in Publication Data

McGraw-Hill dictionary of scientific and technical terms.

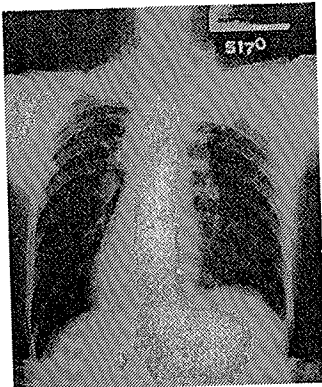
1. Science—Dictionaries. 2. Technology—Dictionaries. I. Lapedes,

RADIO-FREQUENCY AMPLIFIER



Typical radio-frequency amplifier circuits with (a) bipolar transistor and (b) field-effect transistor. AGC = automatic gain control; VCC = collector supply voltage; VDD = drain supply voltage.

RADIOGRAPH



Chest radiograph of foundry worker made with intense beam from rotating-target x-ray tube, showing nodules in lungs which are caused by silicosis, and shadows of skeleton, heart, and stomach.

waves passing through the lower layers of the ionosphere due to a sudden and abnormal increase in ionization in these regions; signals at receivers then fade out or disappear. Also known as fadeout.

radio fan-marker beacon See fan-marker beacon.

radio field intensity [ELECTROMAG] Electric or magnetic field intensity at a given location associated with the passage of radio waves.

radio field-to-noise ratio [ELECTROMAG] Ratio, at a given location, of the radio field intensity of the desired wave to the noise field intensity.

radio fix [COMMUN] Determination of the position of the source of radio signals by obtaining cross bearings on the transmitter with two or more radio direction finders in different locations, then computing the position by triangulation. [NAV] 1. Determination of the position of a vessel or aircraft equipped with direction-finding equipment by ascertaining the direction of radio signals received from two or more transmitting stations of known location and then computing the position by triangulation. 2. Determination of position of an aircraft in flight by identification of a radio beacon or by locating the intersection of two radio beams.

radio fixing aid [NAV] Equipment making use of radio to assist in the determination of a geographical position.

radio frequency [ELECTROMAG] A frequency at which coherent electromagnetic radiation of energy is useful for communication purposes; roughly the range from 10 kilohertz to 100 gigahertz. Abbreviated rf.

radio-frequency alternator [ELEC] A rotating-type alternator designed to produce high power at frequencies above power-line values but generally lower than 100,000 hertz; used chiefly for high-frequency heating.

radio-frequency amplifier [ELECTR] An amplifier that amplifies the high-frequency signals commonly used in radio communications.

radio-frequency bandwidth [COMMUN] Band of frequencies comprising 99% of the total radiated power extended to include any discrete frequency on which the power is at least 0.25% of the total radiated power.

radio-frequency cable [ELECTROMAG] A cable having electric conductors separated from each other by a continuous homogeneous dielectric or by touching or interlocking spacer beads; designed primarily to conduct radio-frequency energy with low losses. Also known as RG line.

radio-frequency cavity preselector [ELECTROMAG] A tunable cavity resonator in an ultra-high-frequency circuit, which is similar in function to a tuned resonant circuit.

radio-frequency choke [ELEC] A coil designed and used specifically to block the flow of radio-frequency current while passing lower frequencies or direct current.

radio-frequency component [COMMUN] Portion of a signal or wave which consists only of the radio-frequency alternations, and not including its audio rate of change in amplitude frequency.

radio-frequency current [ELEC] Alternating current having a frequency higher than 10,000 hertz.

radio-frequency filter [ELECTR] An electric filter which enhances signals at certain radio frequencies or attenuates signals at undesired radio frequencies.

radio-frequency generator [ELECTR] A generator capable of supplying sufficient radio-frequency energy at the required frequency for induction or dielectric heating.

radio-frequency head [ENG] Unit consisting of a radar transmitter and part of a radar receiver, the two contained in a package for ready removal and installation.

radio-frequency heating See electronic heating.

radio-frequency interference [COMMUN] Interference from sources of energy outside a system or systems, as contrasted to electromagnetic interference generated inside systems. Abbreviated RFI.

radio-frequency line See radio-frequency transmission line.

radio-frequency measurement [ELECTR] The precise measurement of frequencies above the audible range by any of various techniques, such as a calibrated oscillator with some means of comparison with the unknown frequency, a digital counting or scaling device which measures the total number of events occurring during a given time interval, or an

electronic circuit for producing a direct current proportional to the frequency of its input signal.

radio-frequency oscillator [ELECTR] An oscillator that generates alternating current at radio frequencies.

radio-frequency power supply [ELECTR] A high-voltage power supply in which the output of a radio-frequency oscillator is stepped up by an air-core transformer to the high voltage required for the second anode of a cathode-ray tube, then rectified to provide the required high direct-current voltage; used in some television receivers.

radio-frequency preheating [ENG] Preheating of plastics-molding materials by radio frequencies of 10-100 megahertz per second to facilitate the molding operation or to reduce the molding-cycle time. Abbreviated rf preheating.

radio-frequency pulse [COMMUN] A radio-frequency carrier that is amplitude-modulated by a pulse; the amplitude of the modulated carrier is zero before and after the pulse. Also known as radio pulse.

radio-frequency reactor [ELECTR] A reactor used in electronic circuits to pass direct current and offer high impedance at high frequencies.

radio-frequency resistance See high-frequency resistance.

radio-frequency shift See frequency shift.

radio-frequency signal generator [ELECTR] A test instrument that generates the various radio frequencies required for alignment and servicing of radio, television, and electronic equipment. Also known as service oscillator.

radio-frequency spectrometer [SPECT] An instrument which measures the intensity of radiation emitted or absorbed by atoms or molecules as a function of frequency at frequencies from 10^5 to 10^9 hertz; examples include the atomic-beam apparatus, and instruments for detecting magnetic resonance.

radio-frequency spectroscopy [SPECT] The branch of spectroscopy concerned with the measurement of the intervals between atomic or molecular energy levels that are separated by frequencies from about 10^5 to 10^9 hertz, as compared to the frequencies that separate optical energy levels of about 6×10^{14} hertz.

radio-frequency spectrum See radio spectrum.

radio-frequency transformer [ELECTROMAG] A transformer having a tapped winding or two or more windings designed to furnish inductive reactance or to transfer radio-frequency energy from one circuit to another by means of a magnetic field; may have an air core or some form of ferrite core. Also known as radio transformer.

radio-frequency transmission line [ELECTROMAG] A transmission line designed primarily to conduct radio-frequency energy, consisting of two or more conductors supported in a fixed spatial relationship along their own length. Also known as radio-frequency line.

radio-frequency welding See high-frequency welding.

radio galaxy [ASTROPHYS] A galaxy that is emitting much energy in radio frequencies often from regions devoid of visible matter.

radiogenetics See radiation genetics.

radiogenic [NUC PHYS] Pertaining to a material produced by radioactive decay, as the production of lead from uranium decay.

radiogenic age determination See radiometric dating.

radiogenic dating See radiometric dating.

radiogoniometer [ELECTR] A goniometer used as part of a radio direction finder.

radiogoniometry [ENG] Science of locating a radio transmitter by means of taking bearings on the radio waves emitted by such a transmitter.

radiogram [COMMUN] A message transmitted by radio.

radiograph [GRAPHICS] The photographic image produced in radiography. Also known as shadowgraph.

radiographic equivalence factor [NUCLEO] The reciprocal of the thickness of a specified material having the same radiographic absorption as a unit thickness of a standard material.

radiographic film [GRAPHICS] The photographic film used in radiography, which must be properly selected for contrast, latitude, and sensitivity.

radiographic sensitivity [NUCLEO] A measure of radiographic quality whereby the minimum discontinuity that may