

EDITOR'S PROFILE of this issue

from a historical perspective ...

with Paul Wesling, SF Bay Area Council GRID editor (2004-2014)

September, 1962 (mid-month):

Cover: Novel digital codes are being developed. The one illustrated here superimposes several streams into one for transmission or storage, then reliably recovers them. More on page 8.

Page 6 and 10: Ronald Bracewell of Stanford speaks on "The Future of Large Radio Telescopes"; the large one on the hills behind the campus is to be under his supervision when completed. A friend of mine was one of Ron's PhD students, and he recalls "The Dish" well. My friend went on to be an expert in orbital mechanics for Lockheed Research in the Stanford Industrial Park.



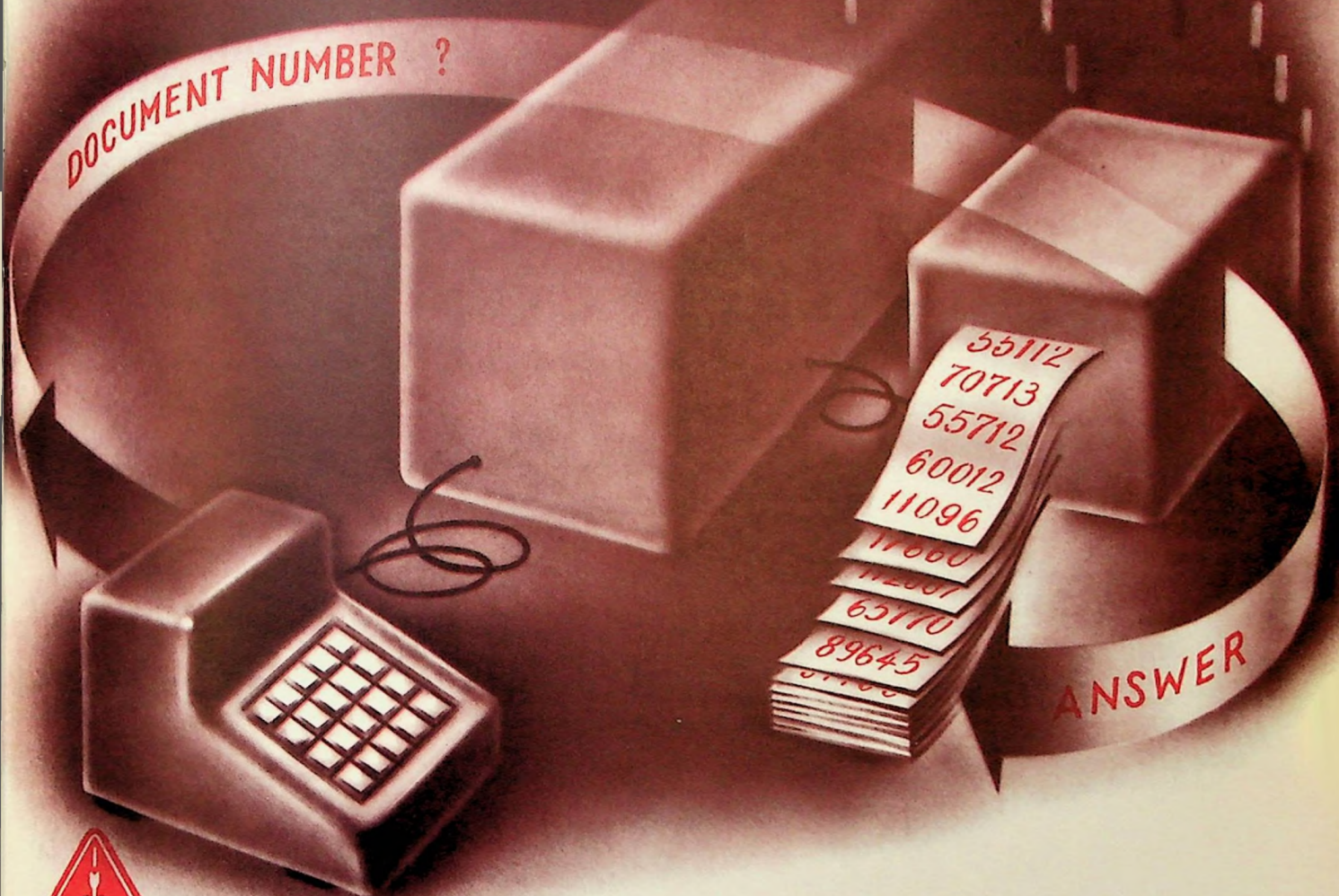
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At time of scanning, the bound volumes are held by Paul Wesling. July, 2021 Contact p.wesling@ieee.org

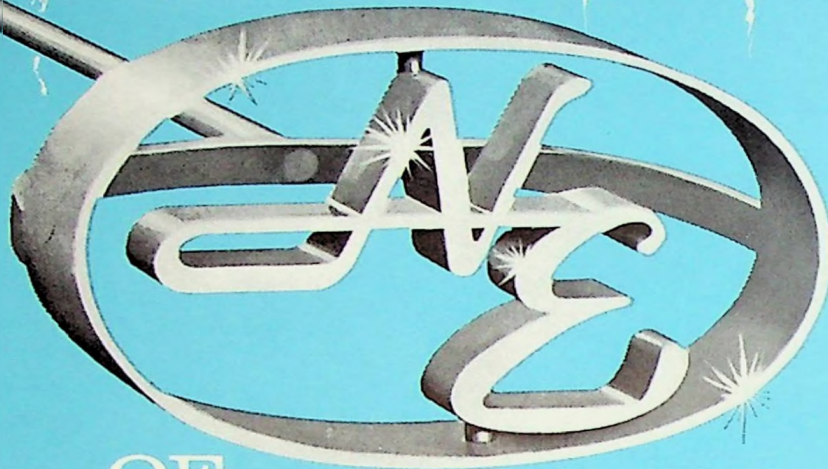
Grid

SEPTEMBER 15, 1962
SAN FRANCISCO SECTION
INSTITUTE OF RADIO ENGINEERS



- September 25 (Tuesday) PGCS/AIEE
- September 25 (Tuesday) PGEC
- September 25 (Tuesday) PGPEP
- September 26 (Wednesday) PGMTT/PGED
- September 27 (Thursday) PGIT
- October 1 (Monday) PGI
- October 2 (Tuesday) SFS/PGAP

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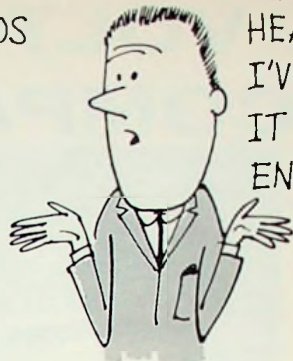
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SECRETS OUT
OF THE
UNIVERSE



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TAKE A LITTLE WORK
TO SOFT-LAND THE
SURVEYOR ON THE MOON



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WHY WE HIRED
MORE NEW GUYS
TODAY



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REALIZE
THINGS ARE
GETTING TOUGHER
AROUND HERE



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cover

Certain communication and information retrieval situations can profitably be regarded in terms of a novel channel model, the "binary superposition channel" proposed by William H. Kautz, senior research engineer, Stanford Research Institute. Such a channel can transmit simultaneously several superimposed code words derived from independent information sources, "superposition" here consisting of digit-by-digit inclusive-OR operation ($1 + 1 = 1$).

Codes for this channel must be designed to permit resolution of the received signal into its individual components, either with no ambiguity or with a small, controllable error. Such uniquely decipherable superimposed codes (USD codes) can be used for data storage in some information retrieval memories, and they may well have other applications in more conventional communication systems. See the Meeting Calendar (PGIT) and the story on page 8.

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MEETING CALENDAR

SAN FRANCISCO SECTION

8:00 P.M. • Tuesday, October 2

(Joint meeting with PGAP, see below)

PROFESSIONAL GROUPS

Antennas & Propagation

8:00 P.M. • Tuesday, October 2

(Joint meeting with the San Francisco Section)

"The Future of Large Radio Telescopes"

Speaker: Professor Ronald N. Bracewell of Stanford University Radio Astronomy Institute, Radioscience Laboratory

Place: Philco Auditorium, Building 56, Fabian Way, Palo Alto

Dinner: 6:00 P.M., L'Omelette, 4170 El Camino Real, Palo Alto

Reservations: Mrs. Doris Gould, section office, DA 1-1332

Communication Systems

7:30 P.M. • Tuesday, September 25

(Joint meeting with Communications Division, SFS AIEE)

"Sampled Data Telemetry for Satellite Applications"

Speaker: Cecil M. Kortman, Lockheed Missiles and Space Co., Palo Alto

Place: Engineer's Club, 16th Floor, 206 Sansome Street, San Francisco

Reservations: None required

Electron Devices

8:00 P.M. • Wednesday, September 26

(Joint meeting with PGMTT, see below)

Electronic Computers

8:00 P.M. • Tuesday, September 25

"The HCM-202 Thin Film Computer"

Speaker: A. S. Zukin, senior scientist, Hughes Aircraft Company

Place: Building 202, Lockheed Missile and Space Company, Palo Alto

Dinner: 6:00 P.M., Red Shack, 4085 El Camino Way, Palo Alto

Reservations: None required

Information Theory

8:00 P.M. • Thursday, September 27

"Data Communication Through Binary Superposition Channels"

Speaker: William H. Kautz, senior research engineer, Stanford Research Institute

Place: Philco Auditorium, Building 56, Fabian Way, Palo Alto

Dinner: 6:00 P.M., Sakura Gardens, 2226 N. El Camino Real, Mountain View

Reservations: Mrs. Saltzman, DA 6-4350, Ext. 4101

Instrumentation

7:00 P.M. • Monday, October 1

(Joint meeting with Precision Measurements Society)

"Recent Developments in Capacitance and Inductance Measurements"

Speaker: Dr. John F. Hersh, development engineer, General Radio Company, West Concord, Massachusetts

Dinner Meeting: Dinah's Shack, 4269 El Camino Real, Palo Alto

Dr. Hersh's talk will start about 8:30 P.M.

Reservations: Mrs. Renda Blackler, DA 1-7751, by Friday, September 28

Microwave Theory & Techniques

8:00 P.M. • Wednesday, September 26

(Joint meeting with PGED)

"Microwave Modulation and Demodulation of Light"

Speaker: Professor A. E. Siegman, Stanford University

Place: Room 100, Physics Lecture Hall, Stanford

Dinner: 6:00 P.M., the Red Shack Hofbrau, 4085 El Camino Way, Palo Alto

Reservations: DA 4-0631

Product Engineering & Production

8:00 P.M. • Tuesday, September 25

"New Findings in Ultra High Lapping and Polishing of Electronic and Optical Materials"

Speaker: Bill Jensen, president, Geo Science Instruments Company, New York

Place: Varian Cafeteria, 611 Hansen Way, Palo Alto

Reservations: None required

Grid reporters

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remarks from the chairs

Programming is a prime responsibility of the vice chairman, and the incumbent finds himself faced with two major challenges: the forthcoming AIEE-IRE merger and relatively low attendance at last year's meetings. An attempt to meet both problems is being made in the meetings schedule for 1962-63.

A survey of attendance at IRE meetings in the Bay Area during 1961-62 yields two curious bits of information. Average attendances at meetings of the several groups (with the exception of three of the smallest groups) were all between 30 and 50—whereas the membership of the groups varied from 75 to 750...!

It is difficult to assess the significance of the very large variations in average attendance. A few of the PG officers profess to be perfectly content with an average attendance of 40, even though that number may represent only

10-20 percent of a chapter's membership. As long as the speakers and topics presented continue to attract at least that number of members, runs the argument, the chapter is serving its avowed purpose.

Not so, say others—especially if by and large the same members come to meeting after meeting and the great majority remain outside all section activities. Besides, say most individual members, there are just too darn many meetings.

The obvious remedy is for the various groups to plan more joint meetings, sponsored by two or more PG's and—in anticipation of the coming merger—jointly with the AIEE San Francisco chapter and its divisions. We see a good augury in the fact that two meetings on the new calendar are jointly sponsored: the AIEE-PGCS meeting next Tuesday and the PGED-PGMITT meeting on Wednesday.

In addition, we have prevailed on six PG's to make one of their scheduled meetings into a joint meeting with the entire section. Under this new proposal, the professional group will be responsible for the program and shall endeavor to retain a speaker of particular distinction. The topic, although remaining within the subject area of the programming PG, shall be nevertheless of sufficient general interest to engage the attention of the entire section's membership. A possible criterion might be that the topic shall be along the lines that papers in the IRE Proceedings (rather than the Transactions) should ideally attain.

The joint meetings will be held during the first week of October, November, January, February, March, April, and May. No competing meetings are to be scheduled during those weeks. It is our fervent hope that this scheme will go a long way toward counteracting member apathy and combatting the ever present danger of overspecialization by providing opportunities for bringing the entire membership together at regular intervals.

Charles Süsskind, vice chairman
San Francisco Section

grid inputs

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Increased editorial space to cover professional group and committee activities through intensified advertising sales campaign . . . October 1 issue featuring program and details of 6th National Conference on Product Engineering and Production to be held at Jack Tar Hotel, November 1-2 . . . continued growth of **Grid's** unique manufacturer/representative index and representative directory now including 227 mfgs and 38 reps whose financial support of the feature

gives them the best bargain available in rep service and advertising . . . increased advertising rates for **Grid** around first of year, reflecting bigger circulation through membership growth and inclusion of former AIEE members in area as readers, circulation of **Grid** to crowd 9000 in year ahead and that of **Grid-Bulletin** to approach 30,000 . . . a new symbol for IEEE, still under design, to become an integral part of the **Grid** cover early in the year . . . possible interim use of

international notes

The national IRE Executive Committee recently approved the establishment of a new section, the United Kingdom Section, consisting of the Channel Islands, Isle of Man, Northern Ireland, and United Kingdom of Great Britain. It also approved formation of a new Region 9, made up of the U.K. Section and sections in Italy, Israel, Switzerland, France, Egypt, and the Benelux countries.

AIEE meeting features, calendar items in the **Grid** as the merger becomes effective on the section level.

meeting ahead

DOUBLING UP DATA

Pioneering in the development of a proposed new concept in engineering will be the theme of PGIT's first meeting of the program year at 8:00 p.m. on Thursday, September 27.

William H. Kautz, senior research engineer, SRI, whose topic, "Data Communication Through Binary Superposition Channels," is described graphically on the cover through the courtesy of his institute's art department, went all the way at M.I.T., receiving the Sc. D. there in 1951.

At SRI he has been principally concerned with digital network theory and its applications to the logical design of digital computers, the development of codes and coding systems for computers and communication systems, and the application of combinatorial mathematics to digital system and circuit design and to computing processes.

He is the author of several papers, and a number of patents have resulted from his work. He has also organized and taught graduate courses on the theory of switching at Stanford from 1958 to 1960, and has supervised two Ph.D. thesis programs.



Kautz

Hersh

The speaker was a member of the administrative committee of PGCT from 1955 to 1958, and for several years has been engaged in editing and review work for the publications of PGCT, PGIT, and PGEC.

Prior to the meeting at Philco Auditorium, the theory of switching will be applied to chopsticks at a 6:00 p.m. dinner at Sakura Gardens. Reservations, vital to the logistics of sukiyaki, should be made with Mrs. Saltzman, DA 6-4350, Ext. 4101.

meeting ahead

CAPACITANCE PRECISION

Significant improvements have been made in the accuracy of the determination of the absolute value of the unit of capacitance, according

to John F. Hersh, development engineer, General Radio Company, West Concord, Mass., who will address the October 1 meeting of PGI to be held jointly with the Precision Measurement Society.

Discovery of a new calculable standard of capacitance—the Thompson-Lampard Capacitor—and development of very precise bridges based on the transformer ratio arm principle have made these improvements possible.

Work in this area is still in progress in several countries, and further significant improvements appear to be possible. Since other basic units can be derived from the unit of capacitance, better values for these units should follow. The progress in basic standards and measurements methods has resulted in major improvements in measurement accuracies obtainable at all levels.

Dr. Hersh will discuss the present state of the art and review possible advances.

The portions at Dinah's Shack will be measured at a dinner beginning at 7:00 p.m., followed by Dr. Hersh's address in the same spot at about

(Continued on page 10)

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MORE MEETING

8:30. Reservations should be made by calling Mrs. Renda Blackler, DA 1-7751, by Friday, September 28.

Other meetings ahead, in what promises to be another active program year, are outlined in the Meeting Calendar on page 6 and the IREminder on the cover. Chairmen are urged to report on upcoming meetings as much in advance as possible to provide an opportunity for full advance coverage in the Grid.

meeting ahead

PG/SECTION/UNIVERSE

A new approach to Section/PG meeting joint sponsorship, fully detailed by Charles Süsskind on page 7, will be inaugurated on October 2, when the section and PGAP will present Professor Ronald N. Bracewell, Stanford University, in an analysis of "The Future of Large Radio Telescopes."

Reservations for a 6:00 p.m. meet-the-speaker dinner at L'Omelette should be made with Mrs. Doris Gould, section office, DA 1-1332.

A representative turnout from all PG's is urged by section officers for the interdisciplinary series of meetings to be held throughout the year.

events of interest

IRE MEETINGS SUMMARY

Sept. 28-29—**12th Annual Broadcast Symposium.** Willard Hotel, Washington, D.C. Program: Dr. William L. Hughes, E.E. Dept., Okla. State University, Stillwater, Okla. IRE TRANSACTIONS on Broadcasting.

Oct. 1-3—**8th National Communications Symposium.** Hotel Utica and Municipal Aud., Utica, N.Y. Exhibits: Chas. Glaviano, 45 Meadow Drive, Rome, N.Y. Program: George Baldwin, Paris Road, R. D. 2, Clinton, N.Y.

Oct. 2-4—**IRE Canadian Electronics Conference.** Automotive Bldg., Exposition Park, Toronto, Canada. For information, contact IRE Canadian Elec. Conference, 1819 Yonge St., Toronto 7, Ontario, Canada.

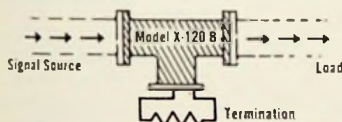
Oct. 2-4—**National Symposium on Space Electronics and Telemetry.** Fountainbleu Hotel, Miami Beach, Fla. Exhibits: Charles Doersam, Instruments for Industry, 101 New So. Rd., Hicksville, L.I., N.Y. Program: Otto A. Hoberg, George C. Marshall Space Flight Center, NASA Redstone Arsenal, Ala. Proceedings.

PAPERS CALLS

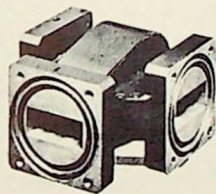
Oct. 15 (prior to): 100-word unclassified abstract, 500-word summary, and a short biography of the author for 1963 National Winter Convention on Military Electronics, Ambassador Hotel, Los Angeles, Calif., Jan. 30-31 and Feb. 1, 1963. Authors of unclassified papers are responsible for obtaining all necessary clearances to present this paper. All papers should be sent to Dr. Fred P. Adler, manager, Space Systems Div., Hughes Aircraft Co., Culver City, Calif.

Oct. 19: 100-word abstract and 500-word summary both in triplicate, title of paper, name, and address for 1963 IRE International Convention, Mar. 25-28, 1963. Waldorf-Astoria & New York Coliseum, New York, N.Y. Indicate the technical (PG) field in which paper should be classified.

NOTE: only original papers, not published or presented prior to the 1963 IRE International Convention, will be considered. Any necessary military or company clearance of papers must be granted prior to submission. Address to: Dr. Donald B. Sinclair, chairman, 1963 Technical Program Committee, The Institute of Radio Engineers, Inc., 1 E. 79 St., New York 21, N.Y.



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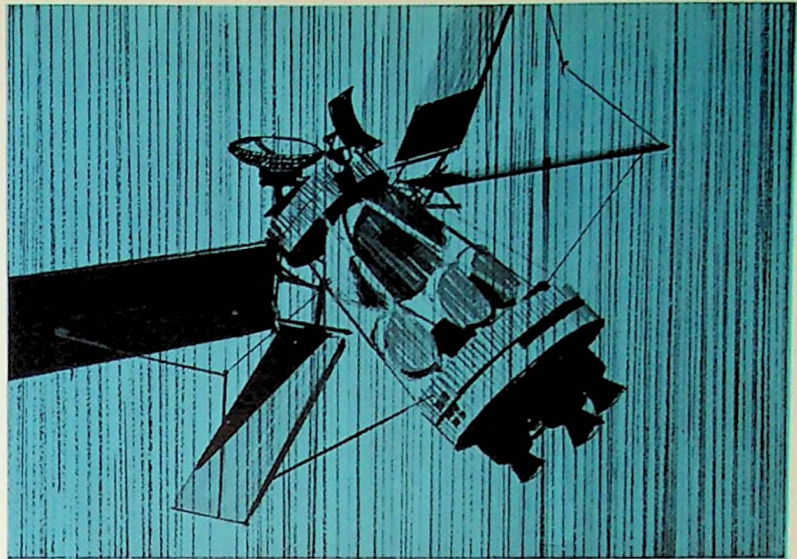
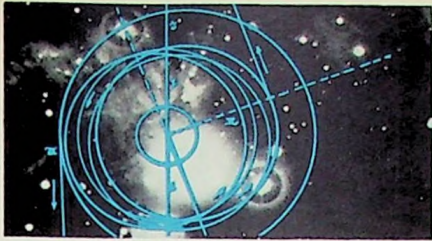
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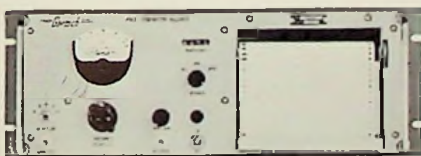
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RHF-1 High-Frequency Standards Receiver



PCR-1 Phase Comparison Receiver

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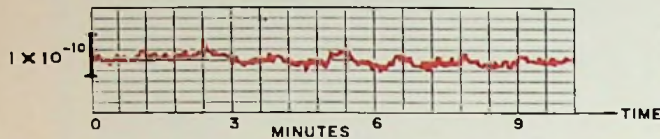
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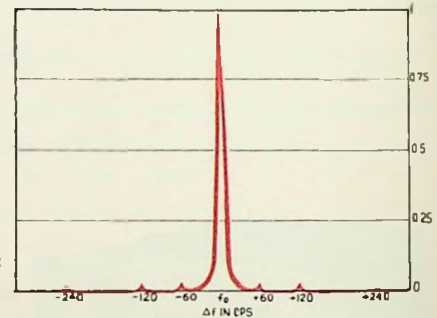
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