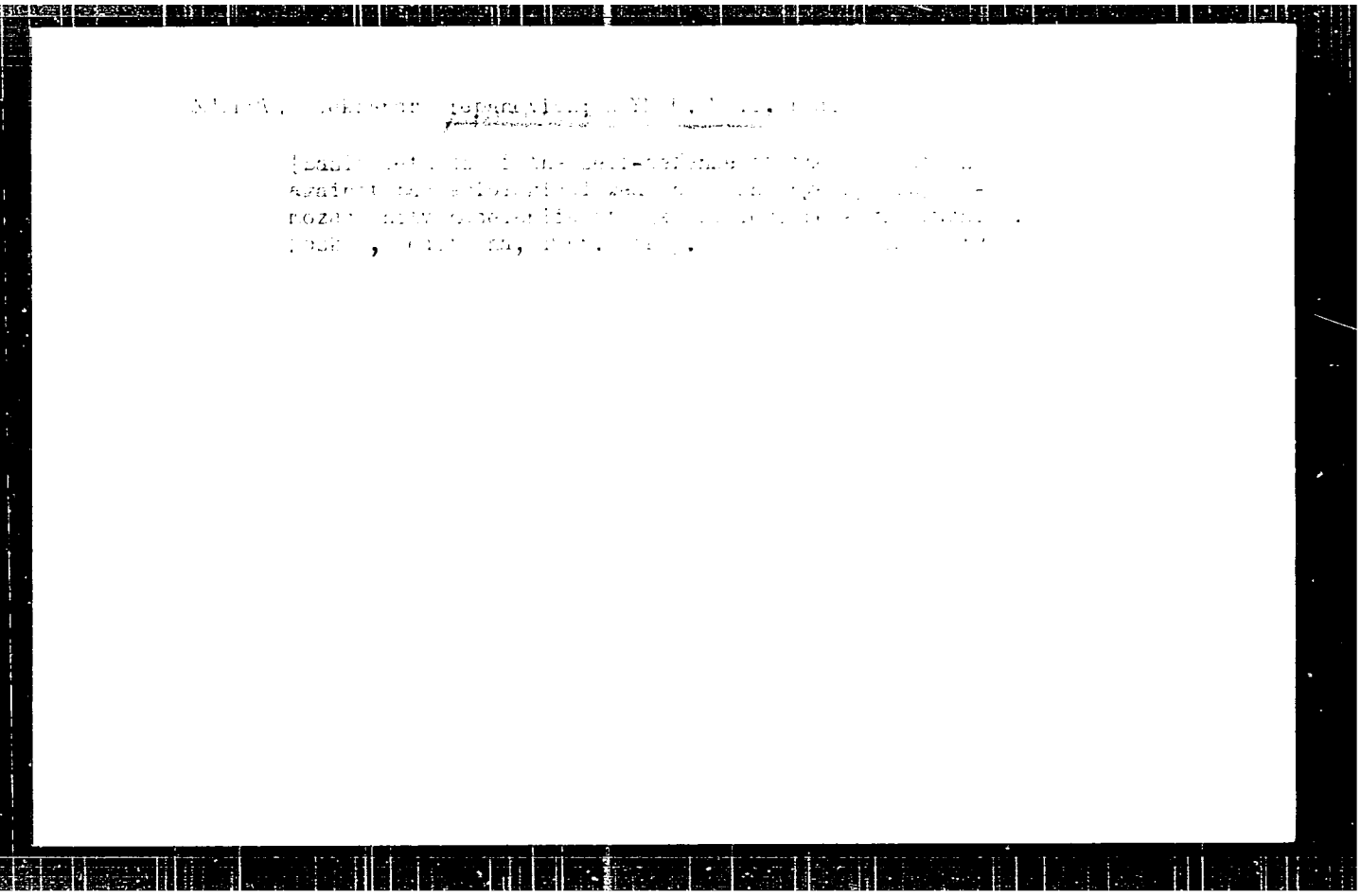
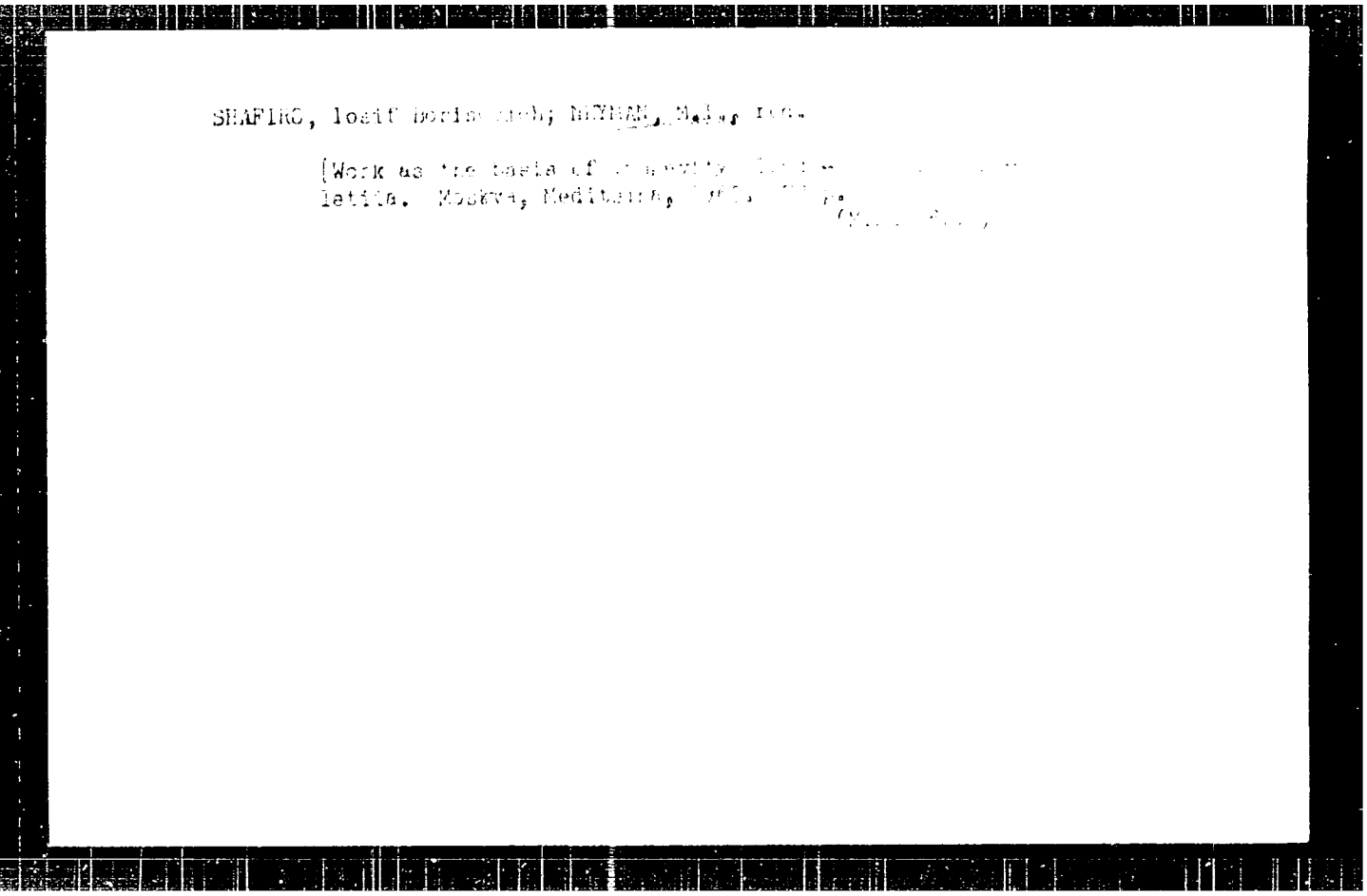
SKOROKHODOV, Lev Yakovlevich; NEYMAN, M.I., red.

[How microbiology developed] Kak razvivalas' mikrobiologiia. Moskva, Meditsina, 1965. 48 p.
(MIRA 18:9)

DAVIDOV, Ruben Begzasarovich, prof. SOKOLOV, [illegible], prof., MAYRAN, M.I., red.

[Milk and health] Moloko i zdorov'e. Moskva, Meditsina, 1965. 52 p. (MIRA 18:5)





SHAFIRO, Iosif Borisovich; MAYMAN, M.A., red.

[Work as the basis of [illegible] latitude. Moskva, Meditsina, [illegible]

SHUB, Rafail L'vovich; NEYMAN, M.I., red.; FREYYERMAN, A.B., red.

[What a woman should know about her health] Chto dolzhna znat' zhenshchina o svoem zdorov'e; nauchno-populiarnaia meditsinskaya literatura. Moskva, Meditsina, 1965. 25 p. (MIRA 19:1)

POLYANKIN, Nikolay Yakovlevich; NEYMAN, M.I., red.

[Smoking is the enemy of health] Kurenie - vrag zdorov'ia. Moskva, Meditsina, 1965. 26 p. (MIRA 18:12)

LATSINIK, Garri Yefimovich; SHCHERBAK, Yuriy Fedorovich; NEYMAN, M.I., red.

[Infectious hepatitis; Botkin's disease] Infektsionnyi gepatit; bolezn' Botkina. Moskva, Meditsina, 1965 29 p. (MIRA 18:12)

CHAZOV, Yevgeniy Ivanovich, doktor med. nauk; NEYMAN, M.I., red.

[Myocardial infarct; causes, treatment, prevention] Infarkt miokarda; prichiny, lechenie, preduprezhdenie. Moskva, Meditsina, 1965. 39 p. (MIRA 18:12)

ZIKEYEVA, Valentina Konstantinovna; NEYMAN, M.I., red.

[Therapeutic diet in diseases of the liver and bile ducts] Lechebnoe pitanie pri bolezniakh pecheni i zhelchnykh putei. Izd.2., ispr. i dop. Moskva, Meditsina, 1965. 53 p. (MIRA 19:1)

TRANGEYZER, Valentina Andreyevna, kand. med. nauk; NEYMAN, M.I., red.

[Prevention of atherosclerosis] Preduprezhdenie ateroskleroza. Moskva, Meditsina, 1965. 54 p. (MIRA 18:12)

KARPUKHIN, Vasiliy Timofeyevich, prof.; NEYMAN, M.I., red.

[Urological diseases] Urologicheskie zabolevaniia. Izd.2., ispr. i dop. Moskva, Meditsina, 1964. 54 p. (MIRA 18:3)

KUCHERUK, Valent Viktorinovich; NEYMAN, M.I., red.

[Control of rodents, carriers of diseases] Bor'ba s gryzunami-nositeliami bolezney. Moskva, Meditsina, 1964. 36 p. (MIRA 18:3)

137-58-6-12032

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 121 (USSR)

AUTHOR: Neyman M.N.

TITLE: Certain Data Pertaining to the Planning of Hydrometallurgical Zinc Plants (Nekotoryye dannyye o proyektirovanii gidrometallurgicheskikh tsinkovykh zavodov

PERIODICAL: Tr. soveshchaniya po metallurgii tsinka, 1954. Moscow, Metallurgizdat 1956 pp 30 43

ABSTRACT: The author describes engineering processes that have been developed recently for various zinc plants, new equipment, and novel technological process systems developed by research institutes. All projects provide for roasting of concentrates by the method of FluoSolids roasting in furnaces 6.7 m in diameter, 8 m high and capable of a productivity of approximately 100 tons. The operation of leaching of oxides, dusts, and sublimates of the Pb production is to be combined with the subsequent operations of sulfatization of Pb slurries, thus ensuring a high degree of extraction of Zn and rare metals. The plans provide for extensive employment of plastic materials and of ceramic tile for lining of various pieces of equipment. A

Card 1/2

137-58-6-12032

Certain Data Pertaining to the Planning of Hydrometallurgical Zinc Plants

sensitive system for removal of dust from gases has been designed, in part, for wet electrostatic precipitators so as to permit their utilization on a larger scale after they had been tested under shop conditions. The plans call for more extensive employment of pipe lines to provide hydraulic transportation for slurries, re-pulped dusts, and oxides.

A.P.

1. Zinc--Production 2. Zinc ores--Processing 3. Industrial plants--Design
4. Industrial plants--Equipment

Card 2/2

137-58-4-6443

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 4, p 15 (USSR)

AUTHOR: Neyman, M.N.

TITLE: Designing Roasting Shops for Zinc Plants (Proyektirovaniye obzhigovykh tsekhov tsinkovykh zavodov)

PERIODICAL: Tr. Tekhn. soveshchaniya po obzhigu materialov v kipyashchem sloye. Moscow, Metallurgizdat. 1956. pp 46-56

ABSTRACT: Zn concentrate roasting installations are designed on the basis of research work done by Gintsvetmet at a small experimental furnace at the Elektrotsink works and with the aid of literature data on the work of an industrial installation at a Canadian plant. The design and installation of rectangular and round pilot plants is described.

A.Sh

1 Industrial plants--Design 2 Zinc--Roasting--Applications

Card 1/1

LEBEDEVA, Kapitalina Vladimirovna; NEYMAN, M.N., red.

[Safety measures in the metallurgy of lead and zinc] Tekhnika bezopasnosti v metallurgii svintsa i tsinka. Moskva, Metallurgizdat, 1963. 298 p. (MIRA 17:6)

NEYMAN, M S.

[illegible] KOLB, A. A. and NEYMAN, M. S.

"Instrument for Direct Measurement of the Coefficient of Running Waves in Feeder Cables," Elektrosvyaz, no. 4, 1941

USSR/Electronics Jan/Feb 1948
Electrons - Motion
Energy - Dissipation

"The Energy Dissipation of Electrons During Their Movement in a Rapidly Changing Homogeneous Electric Field," Prof M. S. Neyman, Dr Tech Sci, 19 pp

"Radiotekh" Vol III, No 1

Investigates conditions of electronic motion between two parallel grids having long transit time. Submitted 13 Mar 1947.

64T56

W. E.

Values + Frequencies

1937

621.385.1.4 537.291

On the Phenomena in the Cathode-Grid Space of Triode and Tetrode Oscillators at Ultra High Frequencies

M. S. Neiman (Leningrad). Vestnik, July-Aug. 1936, No. 4, pp. 7-25. In Russian.) Discussion of (a) deviation of the emission current from the 2/3 power voltage current relationship, (b) the passage through the control grid of only those electrons which have left the cathode at the beginning of the emission interval, (c) the return of emitted electrons to the cathode (d) the large ratio of the time interval during which the electrons pass through the grid to the interval during which they are emitted from the cathode (e) variations in electron velocities after passage through the grid and (f) acceleration of electrons by the grid. The simplifying assumption is made that all the lines of force from the space charge are directed towards the cathode. A number of simple relationships are derived but these should be regarded only as approximate. Other phenomena due to the inertia of electrons in oscillators with flat electrodes are mentioned.

1949

NEYMAN, M.S., doktor tekhnicheskikh nauk; KOKUSHKIN, A.A., redaktor; URAZOVA, A.N., tekhnicheskiy redaktor.

[Triode and tetrode high-frequency generators] Triodnye i tetrodnye generatory sverkhvysokikh chastot. Moskva, Izd-vo "Sovetskoe radio," 1950. 282 p. [Photostat] (MIRA 8:2)
(Electron tubes) (Oscillators, Electron-tube)

NEYMAN, M. S.

Radiophysics, Superhigh Frequencies
Radiotekhnika, Vol 5, No 5, 1950. "Generalization of the Line Theory to Waveguide Systems."

No abstract.

SO: Radiotekhnika, Vol 9, No 2, Mar/Apr 54; (W-30785, 28 July 1954)

[redacted], V. I.

Technolo y

(Triode and tetrode ultra high frequency generators). (Moskva), Sovetskoe radio, 1951.

Monthly List of Russian Accessions, Library of Congress, November, 1952. UNCLASSIFIED.

USSR/Electronics NEYMAN, M. S. FD 226

Card 1/1

Author : Neyman, M. S., Active Member, VNORiE

Title : Couplings between waveguide systems through openings in side walls

Periodical : Radiotekhnika 9, 5-12, Mar/Apr, 1954

Abstract : Proposes waveguide couplings through openings whose longitudinal dimensions are small compared to wavelength. Gives equivalent circuits for various couplings (e.g., parallel-capacitive, series-inductive, parallel-inductive) and gives directions for calculating parameters of equivalent circuits. Investigation based on the theory of lines generalized to regular waveguide systems. One reference: 1 USSR.

Institution : All-Union Scientific and Technical Society of Radio Engineering and Electric Communications imeni A. S. Popov (VNORiE)

Submitted : June 30, 1952

NEYMAN, M. S.

[illegible]

О [illegible]

[illegible]

[illegible]

III. СЕКЦИЯ ПЕРЕДАЮЩИХ УСТРОЙСТВ

Руководитель [illegible]

9 июня
(с 10 до 16 часов)

[illegible]

О [illegible]

[illegible]

[illegible]

[illegible] 80%.

[illegible]

Метод [illegible]

10

9 июня
(с 18 до 22 часов)

[illegible]

[illegible]

[illegible]

Об [illegible]

[illegible]

[illegible]

11 июня
(с 10 до 16 часов)

С. [illegible]

[illegible]

[illegible]

[illegible]

11

report submitted for the Centennial Meeting of the Scientific Technological Society of Radio Engineering and Electrical Communications im. A. S. Popov (VNORiE), Moscow, 8-12 June. 1959

NEYMAN, M.S.

SHTEYNSHLEYGER, Vol'f Bentsionovich; LOSHKINA,T.A., redaktor; NEYMAN, M.S., professor, doktor tekhnicheskikh nauk, retsenzent; KATSENELENBAUM,B.Z., kandidat tekhnicheskikh nauk, retsenzent; ZUDAKIN,I.M., tekhnicheskiy redaktor

[Phenomena of interaction of waves in electromagnetic resonators] IAvleniia vzaimodeistviia voln v elektromagnitnykh rezonatorakh. Moskva, Gos.izd-vo obor.promysh., 1955. 111 p. (MLRA 9:2)
(Electric resonators)

NEYMAN, Mikhail Samoylovich; SHAMSHUR, V.I., redaktor; LARIONOV, G.Ye., tekhnicheskiy redaktor

[Generalization of a circuit theory for wave systems] Obobshchenie teorii tsepei na volnovye sistemy. Moskva, Gos. energ. izd-vo, 1955. 191 p. (MLRA 8:6)
(Electromagnetic theory) (Radio waves)

NEYMAN, M. S.

"Successive Calculation Method for Wave Guides and Oscillating Circuits," Radio Tekh, No 1, 1955

NEYMAN, M. S
USSR/Electronics - Information Theory

FD-2537

Card 1/1 Pub 90 - 2/12

Author : Neyman, M. S., Active Member, VNORIE

Title : The General Theory of Signals and the General Theory of Automatic Processes

Periodical : Radiotekhnika, 10, 13-16, May 1955

Abstract : Arguments are given in favor of establishing two disciplines of a general character: namely, (1) the general theory of signals and (2) the general theory of automatic processes. They are defined and the basic features of their contents are formulated. The ties between them and their importance to modern radio engineering and electronics are emphasized. The theories are advanced with a view to providing a theoretical framework for phenomena related to but treated by information theory but not included in the latter.

Institution : All-Union Scientific and Technical Society of Radio Engineering and Electric Communications imeni A. S. Popov (VNORIE)

Submitted : March 8, 1955

NEYMAN, M. S.

FD-2289

USSR/Electronics - Waveguides

Card 1/1 Pub 90-2/12

Author : Neyman, M. S., Active Member VNORiE

Title : A stopwise Method of Calculating Waveguide and Oscillator Systems

Periodical : Radiotekhnika 10, 12-22, Jan 1955

Abstract : A method is given for calculating waveguide systems and closed vibrators, based on coupling between the more complex and more simple electromagnetic systems. This permits finding the parameters of cavity electromagnetic systems without the need for calculating the wave electrodynamic relations. The author classifies electromagnetic systems and discusses the relationship between resonant and critical frequencies, wave characteristics, distribution parameters, and structure of electromagnetic fields.

Institution: All-Union Scientific and Technical Society of Radio Engineering and Electric Communications imeni A. S. Popov (VNORiE)

Submitted : July 3, 1953

NEYMAN, M.S.

CARD 1 / 2 PA - 1247

SUBJECT USSR / PHYSICS
AUTHOR NEJMAN, M.S.
TITLE On the Method of Computing and Projecting Generators with Triodes, Tetrodes, and Penthodes.
PERIODICAL Radiotechnika, 11, fasc. 4, 15-23 (1956)
Publ. 4 / 1956 reviewed 9 / 1956

The present work investigates the method of projecting new generator tubes and computing electric circuits of lamps such as are at present in use. Computation is based upon an assumed useful efficiency or net output, and the losses in the oscillation system of the anode are taken into account. This method is a further development of a previously published method (M.S.NEJMAN, Vestnik elektrotechniki, No 1, 25 (1930)). For computation the usual simplifying assumptions are made.

Initial equations: On the occasion of the computation of already existing types of tubes 4 parameters are known and 19 quantities are sought. These quantities are connected with one another by 15 independent equations which apply for triodes, tetrodes, and penthodes with the exception of some older types of tetrodes. In computation 4 degrees of freedom are left over, and further 2 additional conditions are mentioned.

At first, while all additional limitations are neglected, the computation method using both degrees of freedom is studied for the determination of the maximum total degree of efficiency of the generator. This computation method permits the determination of the highest degree of efficiency and of the corresponding

NEYMAN, M S. (Mikhail Samoylovich)

Call Nr: AF 1157024

AUTHOR: Neyman, M. S.

TITLE: A Course on Radio Transmitters. Part 1. High Frequency Radio Transmitters. (Kurs radioperedayushchikh ustroystv. Chast'. Radioperedatchiki vysokikh chastot)

PUB. DATA: Izdatel'stvo "Sovetskoye Radio", Moscow, 1957, 296 pp.

ORIG.AGENCY: None given

EDITOR: Zabolotskiy, N.G.; Tech.Ed.: Koruzev, N.N.

PURPOSE: The book was written as a textbook for the course in radio transmitters and was approved as such by the Main Administration of Polytechnical and Machine-building Institutes of the Ministry of Higher Education of the USSR.

~~Card 1/11~~

Call Nr: AF 1157024

A Course on Radio Transmitters. (Cont.)

COVERAGE: The present volume contains the first part of the course and covers the fundamentals of the theory and of design of high frequency oscillators, oscillatory systems, self-excited oscillators, transmitters with amplitude modulation and the principles of construction of long, medium-and short wave transmitters. The author acknowledges the cooperation received from Gonorovskiy, I.S., Professor, and Granovskaya, R.A., Docent. He also mentions Andreyevskiy, M.N., Docent, as the author of textbooks on the construction of radio transmitters. These textbook will supplement the present textbook and will serve students working on design projects. There are 23 references, 21 of which are Soviet, and 2 are translations into Russian.

Card 2/11

PA - 3212

AUTHOR: NEYMAN, M.S., Acting Member of the Association

TITLE: On Some Essential Relations in Klystron Amplifiers of High Performance. (O nekotorykh osnovnykh sootnosheniyakh v moshchnykh klistronnykh usilitelyakh. Russian).

PERIODICAL: Radiotekhnika, 1957, Vol 12, Nr 4, pp 3 - 12 (U.S.S.R.)
Received: 6 / 1957 Reviewed: 7 / 1957

ABSTRACT: The modern klystron amplifiers of high performance require very high voltages of the supply line and they have narrow strips of the transmitted frequences. For waves longer than 50-60 cm, moreover, the overall dimensions of the klystron amplifiers are much too large. The paper under review analyzes the causes of these shortcomings and indicates possible ways for their partial elimination. First of all, the formulae are derived for the restrictions which are imposed on the designing of the klystron amplifiers. From these formulae the conclusion is drawn that in order to have the possibility of a low voltage in the supply line the cross section of the electron ray must be large. For the case of a compact cylindrical electron ray this paper derives the restrictive condition and the condition for the lowest permissible voltage in the supply line. It is demonstrated why there must be a narrow transmission strip and also that in this respect we will obtain more advantageous circumstances only if the performance of the klystron amplifier becomes very high. It is shown that it is possible to obtain a widening of the strip also at the expense of the reduction of the

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28(0) PHASE I BOOK EXPLOITATION SOV/2672

Neyman, M.S.

Avtomaticheskiye protsessy i yavleniya; (obshchiye voprosy teorii sistem, soderzhashchikh upravlyayushchiye kol'tsa zavisimostey) (Automatic Processes and Phenomena (General Theoretical Problems of Systems Containing Control Loops) Moscow, Izd-vo "Sovetskoye radio," 1958. 147 p. Errata slip inserted. Number of copies printed not given.

Eds: M.L. Volin and N.D. Ivanushko; Tech. Ed.: A.A. Sveshnikov.

PURPOSE: This book is intended for students, engineers and scientific workers specializing in radio and electronics and related fields. It may also be useful to readers interested in general problems of automatic processes.

COVERAGE: The author discusses from a single point of view the various aspects of automatic processes and phenomena, including stability and instability, self-regulation,

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physical discontinuity and self-oscillation. Chief attention is devoted to closed-loop circuits of control actions, which underlie all aspects of automatic processes. The relation between the theory of automatic processes and certain problems of formal logic are examined, as well as problems of constructing automatic systems for simulating certain features of simple living organisms. The author makes minimum use of mathematical formulas and in some instances to make the presentation as general and as simple as possible, he avoids certain special terms used in the technical literature. To emphasize the arbitrary and subjective character of the general notion of open-loop and closed-loop (feedback) systems, he introduces the term "control loop". The material is illustrated with examples taken for the most part from the field of electronics and radio. For those interested in further study of certain problems in automatic control, the author offers a list of 16 Soviet publications, 4 of which are translations. No personalities are mentioned. There are no references.

6 (4) PHASE I BOOK EXPLOITATION SOV/1598

Neyman, Mikhail Samoylovich

Kurs radioperedayushchikh ustroystv. ch. II: Radioperedatchiki sverkhvysokikh chastot (Course in Radio Transmitting Apparatus. Pt. 2: Superhigh-frequency Transmitters) Moscow, Izd-vo "Sovetskoye radio", 1958. 398 p. No. of copies printed not given.

Ed.L N.G. Zabolotskiy; Tech. Ed.: N.N. Koruzev.

PURPOSE: This is a textbook for students of radio-engineering departments of polytechnical vuzes.

COVERAGE: The author discusses closed-loop oscillatory systems and describes the operation of triode and tetrode superhigh-frequency oscillators. He also discusses the construction and operation of multicavity magnetrons, floating-draft klystrons and traveling-wave tubes. Attention is also given to pulse

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modulators and methods of frequency modulation. The author thanks Professor Ye.I. Manayev and Docent R.A. Granovskaya for reviewing the manuscript. There are no references.

TABLE OF CONTENTS:

88-58-98-1/4

AUTHOR: Neyman, M.S., Doctor of Technical Sciences, Professor

TITLE: Foreword (Predisloviye)

PERIODICAL: Trudy Moskovskogo aviatsionnogo instituta, 1958, Nr 98, Problems in Superhigh-frequency Radio Engineering and Electronics (Voprosy radiotekhniki i elektroniki sverkhvysokikh chastot), pp 3-4 (USSR).

ABSTRACT: The author of the Foreword is the editor of this collection. The collection contains three reports on original research in the fields of waveguide systems, ribbed electrodynamic structures and self-excited oscillator modulation. This research was done from 1955 to 1956 at the Radio Transmission Chair of the Moscow Order of Lenin Aviation Institute imeni Sergo Ordzhonikidze. The present work is the third collection of reports on research done by this Chair. The first two collections were published in 1954 and 1957 (Trudy MAI, Nr 39 and Nr 73). B. Ya. Myakishev is the author of the first report which is concerned with the calculation and experimental determination of the reflection coefficient for

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electromagnetic waves obliquely incident on a ribbed metallic surface. The study shows that when the depth of surface grooves is approximately one quarter wavelength, depth resonance occurs. At the same time, image reflection of the ray is of very low intensity (a small percentage of the radiated power) and almost all the energy is reflected as lateral waves. Simple analytical expressions were obtained for the amplitude and phase of the rays and fields reflected by the grooves in the case of narrow grooves. Data obtained by calculation is given for wide grooves. The phenomena of transverse and longitudinal polarization of incident waves were studied. L.T. Telyatnikov, author of the second article, explains the spectra change theory of amplitude-modulated master oscillators during simultaneous frequency modulation. In this study the following cases are investigated: (1) single tone modulation; (2) modulation of the sum of the non-multiple frequencies; (3) periodic pulse train modulation; (4) irregular signal modulation (i.e., noise). The study shows that additional frequency modulation effectively and assymetrically changes the spectra of amplitude-modulated oscillations. In the third study, written by D.I. Voskresenskiy,

a new method of measuring the reflection coefficient in waveguides and feeders is explained. This method is especially useful in measuring very small values of the reflection coefficient (on the order of a few percent). It is called the resonance method. Greatest attention is given to the application of this method in measuring small reflections which occur in rectangular waveguides at the junction of straight and bent waveguide sections. Examples of measurements made by this method are given and the results compared with the calculated data. These calculations are based on the theory of bent waveguides elaborated by the author which was published in the preceding collection of faculty studies (Trudy MAI, Nr 73, 1957).

AVAILABLE: Library of Congress

JJP/ksv
10-8-58

Card 3/3

NEYMAN, M.S.

Electromagnetic surface waves. Izv. vys. ucheb. zav.; radiotekh. no.1:7-12 Ja-F '58. (MIRA 11:4)

1. Rekomendovana kafedroy radioperedayushchikh ustroystv Moskovskogo ordena Lenina aviatsionnogo instituta im. S. Ordzhonikidze.
(Radio waves)

NEYMAN, M.S.

Special features of applying the method of forced frequency synchronization to backward-wave oscillators. Izv. vys. ucheb. zav.; radiotekh. no.3:288-293 My-Je '58. (MIRA 11:7)
(Microwaves)

06526

6(4,7) SOV/142-2-2-2/25

AUTHOR: Neyman, M.S.

TITLE: Some Basic Problems of High-Power Radio Transmitter Development

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika, 1959, Vol 2, Nr 2, pp 146-154 (USSR)

ABSTRACT: Based on an analysis of the most essential general engineering deficiencies of modern high-power radio transmitters, the author describes some possible avenues for their future development. He discusses some ways of reducing the transmitter dimensions, of eliminating some of the numerous stages of high frequency and modulator units, of a radial cooling system simplification and ways of simplifying the control of transmitters and auxiliary devices. The author further presents a review of papers which will be of interest when solving the aforementioned problems. He emphasizes that prognoses for the future, especially for the remote future, are necessarily always incomplete, since unexpected aspects and possibilities will

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SOV/142-2-2-2/25

Some Basic Problems of High-Power Radio Transmitter Development

confront the researcher during the progress of his work. Therefore, this article should be considered only as an attempt of compiling some hints of a possible future development, based on ideas which are already known at the present time. There are 21 references, 11 of which are Soviet and 10 English.

This article was recommended by the Kafedra radioperedayushchikh ustroystv Moskovskogo ordena Lenina aviatsionnogo instituta imeni Sergo Ordzhonikidze (Chair of Radio Transmitters of the Moscow - Lenin Order - Aviation Institute imeni Sergo Ordzhonikidze)

SUBMITTED: December 13, 1958

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9 (2)

06348
SOV/142-2-4-1/26

AUTHOR: Andreyev, P.N., Zatskaya, T.K., Neyman, M.S.

TITLE: A High-Power, Wideband Resnatron Amplifier

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika, 1959, Vol 2, Nr 4, pp 391-398 (USSR)

ABSTRACT: A 10-kw resnatron amplifier is described briefly. It has a very wide frequency passband (about 6% of the mean frequency). The basic principles used for designing this amplifier are explained. The frequency passband had to be achieved without using some coupled oscillatory circuits, neither for the input, nor for the output. Not more than 6 kv feed voltage were to be used. The reaction of the output circuits on the input circuits and on the exciter were to be eliminated as far as possible. The electron-ray principle was used for designing the electrodes. The amplifier was built as an all-metal structure with continuous evacuation, thus all oscillatory systems and electrodes were placed in a common vacuum. The two oscillatory circuits

Card 1/3

A High-Power, Wideband Resnatron Amplifier

of the amplifier are coaxial, halfwave systems. The input and output systems are tuned by pistons. Input and output of rf energy are designed for coaxial cables with 50 ohm impedance. A general diagram of the resnatron amplifier is shown in Figure 1. A photograph of this device is shown in Fig 2. A detailed diagram is shown in Fig 3. The most important components are shown in a photograph, Fig 4, and in diagrams, Figs 5 and 6. All basic units are watercooled. The constructional details are described briefly. During tests, the following data were established: Load capacity 11 kw; anode voltage and voltage at the screen grid 5.8 kv; bias voltage at the screen grid -165 volts; capacity in the exciting feeder 2.9 kw; current of the anode-screen unit 4.5 amps; control grid current 0.6 amps; cathode heater voltage 3.3 volts; heater current 1700 amps; cooling water consumption 20 liters per minute; continuous duty. The amplitude-freqency characteristic of the resnatron amplifier is shown in Fig 7.

06348
SOV/142-2-4-1/26

A High-Power, Wideband Resnatron Amplifier

The amplifier power was established by measuring the rf power absorbed by the cooling water. The amplifier worked reliably during the test. The publication of this article was recommended by the Department of Radio Transmitters of the Moskovskiy ordena Lenina aviatsionnogo instituta imeni Sergo Ordzhonikidze (Moscow - Order of Lenin - Aviation Institute imeni Sergo Ordzhonikidze). There are 2 photographs, 4 diagrams, 1 graph and 7 references, 6 of which are English/American and 1 Russian.

SUBMITTED: February 25, 1959

Card 3/3

9(SOV/142-2-5-13/19

AUTHOR: Neyman, M.S., Professor Doctor of Technical Sciences, Department Head

TITLE: Radio Engineering Disciplines (On the Problem of Instruction Plans for Training Radio Engineers)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika, 1959, Vol 2, Nr 5, pp 624 - 628 (USSR)

ABSTRACT: The author recommends a radical change of the training program for radio engineers, since existing instruction plans are lagging behind the rapid development of radio electronics and its theoretical foundations. The requirements of contemporary radio engineering cannot be met by correcting existing instruction plans, because a mere addition of new subjects would not eliminate existing deficiencies. The discussion of problems connected with a radical revision of the training program is meeting a stubborn opposition, since such a

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Radio Engineering Disciplines (On the Problem of Instruction Plans for Training Radio Engineers)

change will mean a break with the historical development of radio engineering, originating at the electrical engineering faculties, which in turn were developed at the faculties of mechanical engineering at institutions of higher learning. Until today, this historical development of the radio engineering faculties and departments has a noticeable influence on the training program, resulting in a too detailed coverage of subjects dealing with electrical and mechanical engineering. Radio engineering faculties or departments often belong to power engineering, electrical engineering, aviation or other specialized institutions or vuzes. The members of the scientific councils of these institutions often do not show sufficient understanding of the problems of the radio engineering departments, since the majority of council members belongs to various other departments. It must be kept in mind that, under contemporary conditions, a radio engineer will not work

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Radio Engineering Disciplines (On the Problem of Instruction Plans for Training Radio Engineers)

alone on one problem, but in a team consisting of several other radio engineers, electrical engineers, chemical engineers, technologists, etc. Such team work is practiced at Soviet industrial installations for some time and it is the only possibility of achieving fast and high-quality solutions of complicated engineering problems on the present high level of science. Each of the engineers in such a team must be well trained and must always be informed by recent literature on current developments in his field. At the same time, it is not desireable to train highly specialized radio engineers, since the different fields of radio engineering are often interconnected. A too highly specialized engineer would be useless for his team within a few years due to the rapid development of radio engineering.

Card 3/6 It is necessary to limit the training program for radio

Radio Engineering Disciplines (On the Problem of Instruction Plans for Training Radio Engineers)

engineers, especially in the fields of electrical and mechanical engineering. The amount of theoretical information existing on essential problems of radio engineering is extraordinary large, thus an attempt to include all these subjects into a training program is doomed to failure. Only the fundamentals should be included into the training program without overburdening the students. The number of courses should be kept at a minimum. Such an approach will provide the necessary time for including some disciplines of decisive importance in radio engineering, which were thusfar inadequately covered. The author discusses briefly the numerous and complicated problems arising with such a revision and gives some recommendations concerning the arrangement of courses. The mathematical instruction program should be enlarged by the following sections: 1) introduction to analysis; 2) differential and inte-

Radio Engineering Disciplines (On the Problem of Instruction Plans for Training Radio Engineers)

gral calculus, ordinary differential equations; 3) analytical and differential geometry; 4) vector analysis and matrix calculus; 5) differential equations with partial derivatives and integral equations; 6) theory of probability and random processes; 7) Fourier series and integrals. The theoretical mechanics course should be included in the physics course. The traditional chemistry course can be eliminated, covering those items in the radio materials course which exceed the level of the chemistry course in a secondary school. The author presents a list of courses which should be comprised in the training program for radio engineers: mathematics, general physics, theory of electromagnetic circuits, theory of the electromagnetic field, vacuum electronics, solid state electronics, signal theory, automatic process theory, technical drafting applied mechanics, technology of radio equipment, radio

SOV/142-2-5-12/19

Radio Engineering Disciplines (On the Problem of Instruction Plans for Training Radio Engineers)

parts and materials, electrical equipment of radio networks, transmitters, receivers and amplifiers, antennas and feeder lines, pulse devices, theory of radio networks, specialized courses, and courses dealing with new problems. The reorganization of the instruction plans will require careful preparation and additional discussions to adapt the training program for radio engineers to present requirements. The article was published as a subject of discussion. There is 1 Soviet reference.

ASSOCIATION: Kafedra radioperedayushchikh ustroystv Moskovskogo ordena Lenina aviatsionnogo instituta imeni Sergo Ordzhonikidze (Transmitter Department of the Moscow - Lenin Order-Aviation Institute imeni Sergo Ordzhonikidze)

SUBMITTED: May 19, 1959

Card 6/6

16.680

SOV 108-

AUTHOR: M. S. Neyman

TITLE: On Super High Frequency Intermittent Automatic Computation

PERIODICAL: Radiotekhnika, 1960, Vol 15, Nr 3, pp 7-13 (USSR)

ABSTRACT: The paper is a general discussion of present-day high-speed automatic computers and their possible improvements. The improvement in the speed of high-speed computers is first discussed. It is said that present-day radio engineering with its carrier frequencies offers a far greater field for speed improvement than the application of video impulses. Decreasing by several hundred times the length of the operating wave will increase by that many times the speed of signal transmission, bringing it to more than a billion signals per second. This has two advantages: the increase in flexibility of the system; and the possibility of using several times in succession the same intermittent elements, thus decreasing their total number. On the other hand,

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On Super High Frequency Intermittent Automatic Computation

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SOV/108-15-3-2,[illegible]

it has a disadvantage in that it is related to the velocity of propagation of electromagnetic disturbances. Here then it becomes important both to pay attention to the geometry and length of conductor connections, as well as to develop and use the miniature equipment. The author then discusses super high frequency triggers. Here two phenomena become of prime importance: a hard, rigid condition of self-excitation of autogeneration; and the phenomenon of flipping from one condition of autogeneration into another condition. Here it is important to use many few cycles for these flip-over, or transfer, states, whether these refer to the amplitude, to frequency, or to the phase. Certain semiconductors may be used as e.g. autogenerators--parametric amplifiers, traveling-wave tubes, small-dimension spiratrons, resistive amplifiers, low-power triode autogenerators, or even to a [illegible]-type reflecting klystrons. Some of these, however, must be developed further if their application to high-speed computers is to be successful. There are 2 figures; and 1 U.S. reference: R. L. Wigington, PIRE, Vol 47, No 4, p

Card 2/3

SIFOROV, V.I.; NAYMAN, M.S.

All-Union scientific session dedicated to Radio Day.
Radiotekhnika 15 no.7:76-79 Jl '60. (MIRA 13:7)
(Electronics—Congresses)

S/108/60/015/010/001/008
B012/B060

AUTHOR: Neyman, M. S., Active Member of the Society

TITLE: Principles of the Construction of Intermittent Superhigh Frequency Automation Systems

PERIODICAL: Radiotekhnika, 1960, Vol. 15, No. 10, pp. 3-10

TEXT: The author of the present paper studied several basic problems concerning the construction of amplitude-, frequency-, phase-, and mixed systems of intermittent superhigh frequency automation. In addition, the present paper deals with some general problems arising in the construction and the use of superfast systems of this type. To begin with, the simplest circuits for information processing are examined in connection with the introduction of intermittent superhigh frequency automation. In doing so, the author confines his investigation to the case of binary systems (yes, no), although a construction of more complicated systems (with the aid of some frequencies, phases, and amplitudes) would also be possible. Only the simplest elements of such circuits are discussed. Fig. 1 shows an elementary member serving for the transfer and the processing of informa-

tion in two variants: "repetition" (Fig. 1a) and "negation" (Fig. 1b). Fig. 2 illustrates members with two inputs. One of them (Fig. 2a) corresponds to the logical operation "and", while the other corresponds to the logical operation "or" (Fig. 2b). Fig. 3a shows a member with several outputs. Since a damping of oscillations is inevitable in the transfer of information, it is necessary to provide for amplification appliances. Three variants of such an amplification are shown (Fig. 3b) and explained. The third, which is the amplitude modulation of the superhigh frequency trigger, is recommended and described in greater detail. Fig. 5 shows suitable forms of the amplitude modulation characteristics. It is shown that the simplest is an amplification making use of a modulation frequency which amounts to half of the pulse repetition rate. Three cases of utilization of radiopulses are examined to illustrate the possible designs of the members shown in Figs. 1 and 2: a two-amplitude system, a two-phase system, and a two-frequency system. Without comparing these systems, the mixed superhigh frequency automation systems are examined next. The author further deals with possible superhigh frequency pulse transformation methods, in which the pulses carry binary information. In addition, the methods of their transformation into video pulses and vice

versa are dealt with. It is shown that the transformation of video pulses into radio pulses and vice versa, as well as the transformation of radio pulses of one frequency into radio pulses of another frequency are especially interesting. It is pointed out that (assuming the possibility of ensuring quick information) it is expedient in a number of cases to apply automatic systems from some "levels" or "cascades" with variously fast action. The last chapter of the article deals with the input and output information in the case of superfast operation intermittent automation devices. The possible methods of reducing the volume of input and output information in the solution of very complicated problems are listed. There are 5 figures and 4 references: 1 Soviet.

SUBMITTED: February 12, 1960

Card 3/3

ANDREYEV, P.N.; NAPOLOVA, G.A.; NEYMAN, M.S.

Resnatron self-oscillators with a large power output for operation in the UHF band. Radiotekhnika 15 no.11:26-33 N '60. (MIRA 13:11)

1. Deystvitel'nyye chleny Nauchno-tekhnicheskogo obshchestva radiotekhniki i elektrosvyazi imeni A.S.Popova.
(Oscillators, Electric) (Microwaves)

31980
S/142/61/004/004/001/018
E192/E382

9,7500

AUTHORS: Neyman, M.S., Telyatnikov, L.I. and Zemtsov, G.P.

TITLE: Investigation of flip-flops and registers for the amplitude system of digital computing

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika, v. 4, no. 4, 1961, 388 - 397

TEXT: One of the authors analyzed in two earlier papers (Ref. 1 - Radiotekhnika, 1960, 15, no. 3, 7; Ref. 2 - -do- No. 10, 3) the general problems of designing digital-computing elements based on radio pulses instead of the usual video pulses. Such systems can use amplitude, frequency, phase and combined methods of recording and processing of information. Some experimental results of an investigation of the basic amplitude-type binary systems are described in the following. The elements of the flip-flops and registers are based on over-excited oscillators. The experimental oscillator was based on a vacuum tube, type 6Ж8 (6N8), with series supply in the grid and parallel supply in the anode circuit. The oscillator operated at a frequency of 7 Mc/s. One of the important

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Investigation of flip-flops ....

characteristics of such an oscillator is its output voltage-amplitude U_g at the grid circuit as a function of the negative bias applied to the grid, with the anode voltage E_a as a parameter. A set of such control curves for various E_a is shown in Fig. 1 for the coupling coefficient $K = 1.8$ (coupling between anode and grid circuits). It is seen that, depending on the grid bias voltage, the oscillator can behave as a bistable element. On the basis of Fig. 1, it is possible to determine the width ΔE_g of the bistable zone for various anode voltages. It was also found experimentally that the amplitude of the oscillations was a loop-form function of the anode supply voltage. The width of the bistable zone as a function of the anode voltage is greater than the width as a function of the grid bias voltage. Changeover of the above type of flip-flop (switching circuit) can be effected by means of an external video pulse, radio pulse or both, provided the system operates within the bistable zone. If the triggering is

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Investigation of flip-flops

done by a radio pulse, this should produce forced oscillations in the system, whose amplitude should exceed a certain threshold level. Further, the radio pulse should transfer to the system an energy not less than $(1/2)CU^2$, where U is the amplitude of the threshold voltage and C is the equivalent capacitance of the oscillatory system. The fact that the amplitude-type flip-flop can be controlled either by a radio pulse or by changing its supply voltage can be taken into account in the design of a binary register with an amplitude system of information-storage. Triggering of the flip-flop by means of radio pulses makes it possible to transfer the "state" of a preceding flip-flop to the next unit, while by using video-pulse modulation at the supply side each flip-flop can be returned to its original state. In the case of triode flip-flops, the modulation can be effected at the anode as well as at the grid. The registers can be of the following three types, depending on the inter-coupling elements between the flip-flops: a) register with delay lines; b) register with two flip-flops in each stage and c) register with three flip-flops in each

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Investigation of flip-flops ....

stage. The first flip-flop A is the fundamental element in the register of the second type, while the second trigger B forms the coupling element. The modulating voltage is applied to the fundamental and coupling elements in anti-phase. The modulating voltage is applied to the elements with a phase-shift of 120° in the case of a three-flip-flop register. A register element of the second type was investigated experimentally, the circuit diagram of the system being shown in Fig. 13. The potentiometers R_g in the circuit were used for setting the mean levels of the biases and the amplitudes of the modulating voltage for each of the oscillators. The lefthand-side oscillator was triggered by an external source, operating at 7 Mc/s. The righthand-side oscillator was triggered by radio pulses derived from the lefthand-side oscillator via the capacitances C_{CB1} and C_{CB2} and the diode connected in parallel. The diode was employed principally for directional decoupling of the system. The experiments showed that a satisfactory operation requires that the directional decoupling be at least 10. If the decoupling were lower, a spurious triggering of the lefthand-side oscillator

by the righthand-side oscillator could take place. The above experiments confirmed the possibility of employing the amplitude-type binary switching circuits and registers as reliable computing elements.
There are 14 figures and 8 references: 4 Soviet-bloc and 4 non-Soviet-bloc. The four English-language references mentioned are: Ref. 3 - E. Goto - PIRE, 1959, 47, no. 8, 1304;
Ref. 4 - R.L. Wigington - PIRE, 1959, 47, no. 4, 516;
Ref. 5 - F. Sterzer - PIRE, 1959, 47, no. 8, 1317;
Ref. 6 - Transactions of IRE, 1959, EC-8, no. 3.

ASSOCIATION: Kafedra Moskovskogo aviatsionnogo instituta im. Sergo Ordzhonikidze (Department of Moscow Aviation Institute im. Sergo Ordzhonikidze)

SUBMITTED: December 6, 1960

23089
S/108/61/000/007/001/007
D204/D305

9.7140

AUTHOR: Neyman, M.S., Member of the Society (see Association)

TITLE: Principles of designing memory elements and of code selection for high frequency binary automatic control systems

PERIODICAL: Radiotechnika, no. 7, 1961, 3-10

TEXT: In the present article, the author considers methods of realizing memory elements for binary automatic control systems and the basic principles of code selection. Different memories are considered first. The passive wave memory, a memory obtained owing to a finite time of any wave propagation, can be designed using either the incident or reflected wave in the form of pulse packets. The time of storage is then limited by the attenuation and "erosion" of signals owing to dispersion. The increase in the time storage of these HF memory devices can be achieved by adding active circuits which either periodically or continuously regenerate the information, e.g. in the form of series connected pulse-forming and amplifying

Principles of designing...

circuits (Ref. 4: C. Cutler, PIRE, Vol. 43, No. 2, 1955) or in the form of one oscillating circuit, for several passive elements, such as a TWT. The possibility of storage elements at SHF based on the principle of varying the parameters of the propagation medium, i.e. of a parametric storage element is considered next. Such a memory can use the variation of impedances of attenuation constants, of resonant and phase characteristics, reflection coefficients, coupling coefficients, phase velocity etc. The problem of storing information could be easily achieved for instance by rectified voltage and currents of the radio pulses. These in turn could charge or discharge non-linear capacitances, alone or combined with non-linear resistances of diodes, etc. There are certain difficulties here, however, owing to the time of writing of the information; since e.g. if the time τ of voltage variation is $\tau = 10^{-9}$ sec at a capacitor $C = 10^{-11}$F and $\Delta u = 1$V the required current is $i = 0.01$ amp. This amplification of radio pulses is required. For the selection of stored information and its application to the required element of the automation circuit code selectors could be used. Three systems of code selectors are considered, as applied to a

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sampled system utilizing radio pulses with amplitude, frequency and phase pulse modulation. These are: parallel, pyramidal and crossed types of code selectors. If 1, 2, 3.....m denote the control inputs and there are 1, 2, 3.....n outputs then in the parallel connection of code selection to each of the n outputs, there corresponds one m-th binary code combination and $2^m \geq n$. In the pyramidal system of selection the input 0 branches off in the selector first into two directions, then into four, eight, etc. and finally into 2^m directions. In the crossed system of selection, the selector contains n switches in one direction, situated at the nodes of a plane quadratic matrix. For every row and column there are two sub selectors, each into $\sqrt{n}$ directions. The sub-selectors have at their inputs half of the signals of the governing code combination ($2^{\frac{m}{2}} = \sqrt{n}$), so that the matrix selecting system is being governed in two steps. The parallel type of code selector contains, therefore, n switches in one direction, n comparison circuits each for m signals and n elements which store the individual combinations of the outputs, each for m signals. The pyramidal system contains switches into two directions only, the number of which is equal to

Principles of designing...

$1 + 2 + 4 + ... + 2^{m-1} = 2^m - 1 = n^{-1}$. In crossed types of selectors all the above elements are present in the sub-selectors but in reduced numbers, since $\sqrt{n}$ has to be substituted for n. In further considerations, systems with uni-polar (1 or 0) controlling signals only are considered. The elements of a selector of the parallel type are considered under the assumption that oscillations do not change their parameters except when required. Under such conditions all four A, F, φ and V systems can be achieved using linear passive elements. System φ : the code combination from comparison circuits may consist of phase reversal for instance. System A and f: Here the most convenient is the preliminary transition of the type A $\rightarrow$ φ or f $\rightarrow$ A $\rightarrow$ φ. System V: Here the controlling system most likely to be used is of two polarities i.e. positive and negative. In selectors of parallel types the switching circuit should differentiate between the control signal m and the slightly smaller information signal, the control signals being only A or V. The differentiation can be made more certain by a preliminary amplification of the central signal, constant level detection and code redundancy

Card 4/5

Principles of designing...

in the comparisons circuits. There are 4 figures and 4 references: 2 Soviet-bloc and 2 non-Soviet-bloc. The references to the English-language publications read as follows: H. Takahasi, E. Goto. UNESCO, Proc. of international conference on information, g. 2.9, 1959 (Russkiy perevod: Zarubezhnaya radioelektro tekhnika, No. 4, 1960, p. 86); C. Cutler, PIRE. v. 43, No. 4, 1960, 1955.

ASSOCIATION: Obshchestvo radiotekhniki i elektrosvyazi im. A.S. Popova (Radio Engineering and Electrical Communications Society im. A.S. Popov) / Abstracter's note: Name of association taken from first page of journal/

SUBMITTED: October 10, 1960

Card 5/5

31207

S/108/61/016/012/001/009
D201/D302

9.4210 (1052, 1331)

AUTHOR: Neyman, M.S., Member of the Society (see Association)

TITLE: Karmatron, platinotron and magnetron design

PERIODICAL: Radiotekhnika, v. 16, no. 12, 1961, 3-14

TEXT: Two main problems arise in designing karmatrons, platinotrons and magnetrons: 1) Calculations as related to the electron effects in the interaction space. They exist because of the fact that the electron effects are rather complex and not yet fully understood. 2) The design of the structure of the delay system including all technical data required for their proper operation. Attempts at the theoretical solution of the above problems have produced, until now, no results which could be applied in practice. Since, however, some design criteria are necessary, the author attempts, in the present article, to obtain a simplified approach to the design of the above devices, based on fundamentally simple ideas and relationships and using certain empirical facts and coefficients.

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Karmatron, platinotron ...

The multi-segment magnetron design considerations are included because the known methods of their design do not underline their similarity to karma- and platinotrons. The analysis is based on a unified representation of all three devices, all considered as variants of the type M of TWT. Because of that the parameter δ, equal to the cathode-to-anode ratio, is not introduced. Another parameter is introduced instead, representing the ratio of the distance between cathode and segments of the delay structure to the pitch of the latter. It is stated that ideas and recommendations as to the choice of parameters are tentative and should be made more exact as soon as more experimental data are available. The basic relationships as assumed in the article are as follows: 1) Synchronization condition, Eq.(1) $\frac{v_p}{c} = \frac{1}{300} \cdot \frac{E_o}{H_o}$ where v_p - the phase velocity of delayed electromagnetic waves equal to the average axial electron velocity; c - velocity of light; $\frac{c}{v_p}$ - retardation; E_o and H_o - the intensity of electric and magnetic field respectively. 2) The expression for the radius ρ_c of the cycloid of electron motion,

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Karmatron, platinotron ...

Eq.(2) $\rho_c = \frac{m}{e} 10^9 \cdot \frac{E_0}{H_0^2} \approx 5{,}8 \frac{E_0}{H_0^2}$. 3) The simplified relationship between E_c and H_0 Eq.(3) $U_0 = E_0 d$, where d - distance between the cathode and segments of delaying structure. 4) The relationship between the pitch (space periodicity) D of the delay structure and the wavelength Eq.(4) $D = \frac{v_p}{c} \cdot \frac{\lambda}{2} \cdot \frac{\theta}{\pi}$, where λ wavelength, θ - phase shift per step. For π -type of oscillations $\theta = \pi$ for the wave component, the interaction of which with electrons is used as the useful effect. 5) The idealized thermionic efficiency Eq.(5) $\eta_e = 1 - \frac{2\rho_c}{d}$, which does not take into account the fringe and other effects. 6) Connection between d and D Eq.(6) $d = \Omega D$, where Ω is a certain parameter, which is one of the basic design parameters. After a few transformations, the required system of relationships takes the form of Eqs.(7), (8), (9) and (10)

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$$H_0 = \frac{6950}{a\lambda(1-\eta_e')} \cdot \frac{\pi}{\theta}; \quad (7) \qquad \frac{c}{v_p} = \frac{1020}{\sqrt{U_0(1-\eta_e')}}; \quad (8)$$

$$D = \frac{\lambda}{2} \cdot \frac{v_p}{c} \cdot \frac{\theta}{\pi}; \quad (9) \qquad d = QD. \quad (10).$$

In platinotrons with relatively short delay structures, the maximum allowable dephasing for the "preferred" band is derived as Eq.(16a) $\frac{2\Delta f}{f} = \frac{2\Delta\Phi^\circ_{lim}}{360^\circ} \cdot \frac{v_e}{lf}$ $\frac{2\Delta\Phi^\circ_{lim}}{360^\circ} \frac{v_e}{DNf}$, where $\Delta\Phi^\circ_{lim}$ - is the maximum allowable dephasing, v_e - the average axial electron velocity, l - distance along the periphery of delay structure and N - total number of delay structure segments. This equation may be rewritten as Eq. (17) $\frac{2\Delta f}{f} = \frac{2}{N} \cdot \frac{\Delta\Phi^c_{lim}}{\Theta}$. For karmatrons the number of segments N may be much larger. In case of magnetrons, dispersion is determined by the condition of a sufficient deviation of the resonant frequency from that

of the adjacent resonance. Determination of the length of the delay system is considered descriptively and as far as the karma- and platinotrons are considered, the final number of segments should be chosen experimentally. The length Δl of the interaction space required for rearranging electron bunching is derived under simplifying conditions, as Eq.(17a)

$$\Delta l = D \cdot \frac{\vartheta_e}{\Delta\vartheta_e} = \frac{2D}{\xi}$$

where $\xi = \frac{U}{U_0}$ denoted as intensity. If the interaction space has a certain curvature - correction factor should be introduced. The exact correction factors are stated to be extremely complicated. The application of the above design procedure is illustrated by the design of a pulsed platinotron and of a pulsed magnetron, the results of which show very good agreement with the published data for both devices. There are 3 figures, 2 tables and 6 references: 3 Soviet-bloc and 3 non-Soviet-bloc. The references to English-language publications read as follows: G.E. Dombrowski, IRE transactions on electron devices, no. 4, (1959); W.C. Brown, PIRE, v. 45, no. 9, (1957).

31207

S/108/61/016/012/001/009
D201/D302

Karmatron, platinotron ...

ASSOCIATION: Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi im. A.S. Popova (Scientific and Technical Society of Radio Engineering and Electrical Communications im. A.S. Popov) [Abstractor's note: Name of Association taken from first page of journal]

SUBMITTED: February 12, 1961

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Card 6/6

NEYMAN, M.S.

Progress of radio electronics and its principal problems.
Izv. vys. ucheb.; radiotekh. 5 no.1:9-15 Ja-F '62. (MIRA 15:5)

1. Rekomendovana kafedroy Moskovskogo aviatsionnogo instituta imeni Sergo Ordzhonikidze.
(Electronics)

S/142/62/005/001/001/012
E140/E435

9.7100

AUTHORS: Neyman, M.S., Zemtsov, G.P.

TITLE: An investigation of logical elements for digital automata using amplitude script

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Radiotekhnika. v.5, no.1, 1962, 16-25

TEXT: The authors describe an experimental study of circuit elements for carrier-amplitude logic. "For greater simplicity and clarity the first experiments were carried out using vacuum triodes and a relatively low frequency of oscillation". The system described consists of stiff-feedback oscillators with a heavy fixed grid bias which maintains them cut-off except when triggered into oscillation by the simultaneous presence of a high-frequency input and a reduction of the bias. The latter is used to control the clock relations. The bias, resonant frequencies and coupling arrangements are adjusted to permit the following logical operations: (with two inputs only) AND, OR, EXCLUSIVE OR, and (with one input only) NOT (negation). The carrier frequency of the experimental elements was 750 kcs, the clock frequency 50 cps (sic). The circuits are not unilateral,

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An investigation of logical ...

so that there is back triggering of oscillators, for example in the OR, with one input excited, the output oscillator is triggered which reacts back on the source for the second input. In the exclusive-OR circuit, pips occur at the start and finish of a cycle if both inputs are nominally excited, due to imperfect synchronism of the two oscillators (the clock signal is sinusoidal). The leakage is also high, the signal-to-"no-signal" ratio being three-to-one. The authors speak of a "synaptic" junction at which the type of logical operation could be controlled by an external signal, due to the fact that the difference between one operation and another is in part controlled by the type of coupling (resistive, capacitive). There are 12 figures and 1 table.

ASSOCIATION: Kafedra Moskovskogo aviatsionnogo instituta im. Sergo Ordzhonikidze (Department of the Moscow Aviation Institute imeni Sergo Ordzhonikidze)

SUBMITTED: June 16, 1961

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S/142/62/005/006/001/011
E140/E435

9,7100

AUTHOR: Neyman, M.S.

TITLE: On electronic machines for testing ultra-high-speed pulse script digital elements

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Radiotekhnika, v.5, no.6, 1962, 663-671

TEXT: The author describes various simple arrangements for testing digital circuits using microwave pulse script or other ultra-high speed elements. The logical operations possible are "AND", "OR", "exclusive-or", shift and store. A system for manual input and cyclic operation with comparison to a prescribed end result is described, permitting operation cycles of the order of several minutes to be obtained. Correct operation is determined by stopwatch, given a knowledge of the clock rate and the period of the operation, e.g. simple counting in a shift-register counter of large numbers of positions. There are 9 figures and 4 tables.

ASSOCIATION: Kafedra Moskovskogo aviatsionnogo instituta im. Sergo Ordzhonikidze (Department of Moscow Aviation Institute imeni Sergo Ordzhonikidze)

SUBMITTED: May 15, 1962
Card 1/1

NEYMAN, M.S.

Super-high frequency sampled-data computer automata. Trudy MAI no.149:5-12 '62. (MIRA 15:12)
(Electronic computers) (Automatic control)

NEYMAN, M.S.

Principles of the design of super-high frequency sampled-data systems. Trudy MAI no.149:13-22 '62. (MIRA 15:12)
(Electronic computers) (Automatic control)

NEYMAN, M.S.; TELYATNIKOV, L.I.; ZEMTSOV, G.P.

Study of triggers and shift registers for amplitude-type sampled-data systems. Trudy MAI no.149:23-37 '62. (MIRA 15:12)
(Pulse techniques (Electronics))
(Electronic computers)

NEYMAN, M.S.; ZEMTSOV, G.P.

Study of logic elements for amplitude-type sampled-data systems. (MIRA 15:12)
Trudy MAI no.149:52-65 '62.
(Electronic computers)

NEYMAN, M.S.

Principles of the design of memory and code selection elements for high-frequency sampled-data control systems. Trudy MAI no.149:148-157 '62. (MIRA 15:12)
(Automatic control)

NEYMAN, M.S.

Concerning the automation of programing operations of superhigh-speed computer systems of discrete electronic automata. Trudy MAI no.149:158-174 '62. (MIRA 15:12)
(Electronic computers) (Automatic control)

NEYMAN, M.S.

Electronic automation of research work. Trudy MAI no.149:175-187 '62. (MIRA 15:12)
(Electronic data processing) (Research)
(Electronic computers)

L 18016-63 EWT(1)/BDS

ACCESSION NR: AP3003391 S/0142/63/006/003/0217/0229

49
48

AUTHOR: Neyman, M. S.

TITLE: Similarity of vacuum electron systems

SOURCE: IVUZ. Radiotekhnika, v. 6, no. 3, 1963, 217-229

TOPIC TAGS: electron tube

ABSTRACT: Although some particular points concerning the laws of similarity of electron-tube systems were published earlier, a general formulation of the laws and design formulas have never been offered; this article is intended to fill the gap. Seven similarity relations based on the space-charge electric field, the electron motion, and the electron transit angle, connect these nine quantities: voltage, structure length, wavelength, magnetic field intensity, current density, current, power, power density, and resistance. Hence, two degrees of freedom are possible in designing; corresponding formulas with an additional condition of

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ACCESSION NR: AP3003391

geometric similarity are tabulated. Type O devices, type M devices (with crossed fields), and small-transit-angle devices are considered. For cases where an axial direction can be clearly designated (no geometric similarity), another set of formulas, with three degrees of freedom, is tabulated. Application of similarity conditions to modeling high-power electron devices and to evaluating the effects of dimensions, wavelength, power, voltage, cathode emission, dissipation power, etc., is discussed. Orig. art. has: 36 formulas and 2 tables.

ASSOCIATION: Moskovskiy aviatsionny*y institut im. Sergo Ordzhonikidze (Moscow Aviation Institute)

SUBMITTED: 03Dec62	DATE ACQ: 02Aug63	ENCL: 00
SUB CODE: GE, PH	NO REF SOV: 002	OTHER: 001

Card 2/2

NEYMAN, M.S.; ZEMTSOV, G.P.

Amplitude triggers using tunnel diodes. Radiotekhnika 18 no.1:40-47 Ja '63. (MIRA 16:2)

1. Deystvitel'nyye chleny Nauchno-tekhnicheskogo obshchestva radiotekhniki i elektrosvyazi imeni Popova.
(Electric networks) (Pulse circuits)

L 22498-65 EWT(d)/EWT(m)/EWP(w)/EWA(d) SSD/AEDC(b)/AFWL EM
ACCESSION NR: AP5002413 S/0286/64/000/024/0012/0012

AUTHOR: Vyal'tsev, V. I.; Glazunov, S. G.; Zaboronok, G. F.; Zelentsov, T. I.; Kiselev, A. A.; Morozov, Ye. I.; Nefedova, L. A.; Reyngol'd, I. A.; Ronshin, A. S.; Sokolov, B. G.; Filippov, D. A.

TITLE: Vacuum furnace for melting alloys. Class 18, No. 166934

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 24, 1964, 12

TOPIC TAGS: vacuum furnace, alloy melting, alloy melting furnace, vacuum melting furnace

ABSTRACT: This Author Certificate introduces a vacuum furnace for melting alloys. The furnace is equipped with electron guns or tilting, high-frequency melting crucibles and a mold which are enclosed in a vacuum chamber. In order initially to melt the alloy components

[illegible] [illegible] [illegible] [illegible] components. [ND]

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1. 22498-65
ACCESSION NR: AP5002413

ASSOCIATION: none

SUBMITTED: 10Mar60 ENCL: 00 SUB CODE: IE, MM

NO REF SOV: 000 OTHER: 000 ATD PRESS: 3169

Card 2/2

ACCESSION NR: AP4042845 S/0142/64/007/003/0283/0294

AUTHOR: Neyman, M. S. (Professor); Zemtsov, G. P.

TITLE: Simple method of testing discrete-operation components at high clock frequencies

SOURCE: IVUZ. Radiotekhnika, v. 7, no. 3, 1964, 283-294

TOPIC TAGS: computer component, computer component testing, computer reliability, computer component reliability

ABSTRACT: This method is suggested for testing the reliability of a trigger, logical element, shift register, etc.: The pulse train from the component being tested is applied to a detector and then to a (simple or superheterodyne) radio receiver. After the detection, an amplification at the clock frequency, or its harmonic, and then a second detection may be arranged. An experimental device (see Enclosure 1) used for testing an r-f pulse trigger consisted of the trigger

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ACCESSION NR: AP4042845

proper Tr, a detector D for isolating the r-f-pulse envelope, a superheterodyne receiver R tuned to the clock frequency, and an indicator I which served to measure the voltage across the receiver detector. The trigger included a tunnel diode with an additional inductance and coupling capacitors. The effects of the supply voltage on the reading of the indicator, for various modulation voltages and at clock frequencies of 70, 130, 140, and 150 Mc, were determined experimentally (curves supplied). It was found that the tested tunnel-diode trigger reliably operated at clock frequencies up to 130 Mc, with a carrier-frequency to clock-frequency ratio of 13.5. The method permits the testing of components not only for flip-flop operation but also for cycles such as: 101010, 100100100, 110110110, etc. Orig. art. has: 12 figures.

ASSOCIATION: none

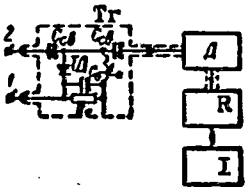
SUBMITTED: 25Mar63 ENCL: 01

SUB CODE: DP NO REF SOV: 003 OTHER: 000

Card 2/3

ACCESSION NR: AP4042845

ENCLOSURE: C/



A trigger testing scheme

Card 3/3

NEYMAN, M.S.

Fundamental problems of microminiaturization. Radiotekhnika 19 no.1:3-12 Ja '64. (MIRA 17:1)

1. Deystvitel'nyy chlen Nauchno-tekhnicheskogo obshchestva radiotekhniki i elektrosvyazi imeni Popova.

NEYMAN, Mikhail Samoylovich; GANIN, I.K., red.

[Course on radio transmitters] Kurs radioperedaiushchikh ustroistv. Moskva, Sovetskoe radio, 1965. 593 p.
(MIRA 18:8)

L 36714-65

ACCESSION NR: AP5004417 S/0108/65/020/001/0003/0009

AUTHOR: Neyman, M. S. (Active member) 12 B

TITLE: Relations between reliability, high speed, and the degree of micro-miniaturization at a molecular-atomic level

SOURCE: Radiotekhnika, v. 20, no. 1, 1965, 3-9

TOPIC TAGS: quantum device, quantum device reliability, microminiaturization

ABSTRACT: This is a continuation of the author's earlier theoretical work (Radiotekhnika, v. 19, no. 1, 1964). It presents additional considerations on the principally possible methods for enhancing reliability and determinacy in using the micro processes for technical purposes. Relations

L 36714-65

ACCESSION NR: AP5004417

processes. In designing technical systems for processing and storing information by means of atomic-molecular events, roughly this relation will hold true: NMBQ/K = C, where N is reliability, M is the degree of microminiaturization,