KUZNETSOV, V. D.; BEREGOVSKIY, V. I.

Technical progress in the conversion of copper mattes; review of foreign literature. TSvet. met. 35 no.10:88-93 O '62. (MIRA 15:10)

(Copper—Metallurgy)

AUTHORS: Kuznetsov, V. D., Academician, and Gribanov, S. A.

TITLE: Cyclic low-temperature treatment of metals of the hexagonal system

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 144, no. 4, 1962, 774-777

TEXT: The authors study the effect of cyclic temperature changes between room temperature and - 185°C on the mechanical properties and on the resistivity of Mg-1 (Mg-1) magnesium, Kd-0 (Kd-0) cadmium, and zinc (purity ≤ 99.9%). The considerable fluctuations that occur in the mechanical properties of magnesium are not increased by a thermal treatment. The resistivity of Mg and Cd remained constant up to 1000 cycles. Some grains showed microscopical traces of sliding. Intense plastic deformation of cadmium alters its yield point from 5.5 kg/mm^2 to 7 kg/mm^2, its tensile stremgth from 6.6 kg/mm^2 to ~7.5 kg/mm^2, and its relative elongation from 24% to ~10%. These changes occur in the first steps of treatment. Increasing the number of cycles to 500 changed these proper-

Card 1/3

S/020/62/144/004/013/024
B125/B104

Cyclic low-temperature...

ties only slightly. The results for zinc are illustrated in Figs. 1 and 2. After the first few cycles, an intense multiplet gliding appears in the grains. As a rule the ensuing cracks propagate along only a single slide line but some of them also go into the neighboring planes, in which case no cracks appear at the boundaries. The large cracks are obviously due to accumulations of dislocations in a given plane at the grain boundaries. They considerably reduce the mechanical strength and increase electric resistivity. Some of the cracks form an angle of 90° with the slide plane. In the range of 100 cycles the generation and development of coarse cracks is reduced, but fine cracks arise owing to retarded shear at the boundaries of the grains, subgrains, and twins. The thermal and structural stresses in cadmium and zinc lead to considerable plastic deformation. In zinc, the formation of cracks interferes, with strengthening. The results of cyclic thermal treatment depend not only on the degree of anisotropy in thermal expansion but also on the mechanical properties of the metal in the temperature range of such treatment. There are 3 figures. The most important English-language reference is: J. J. Gilman, Trans. AIME, 222, 738 (1958).

Card 2/3

X

S/020/62/144/004/013/024
B125/B104

Cyclic low-temperature ...

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy nauchno-issledovatol'skiy institut pri Tomskom gosudarstvennom universitete im. V. V. Kuybysheva (Siberian Physicotechnical Scientific Research Institute at Tomsk State University imeni V. V. Kuybyshev)

SUBMITTED: March 3, 1962

Fig. 1: Dependence of the yield point σ_T and of the tensile strength σ_B on the number n of cycles.

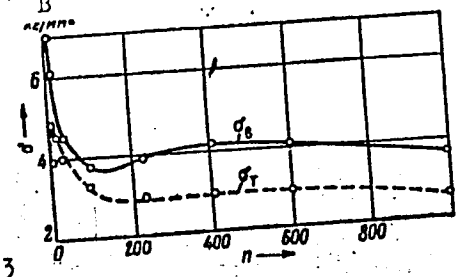
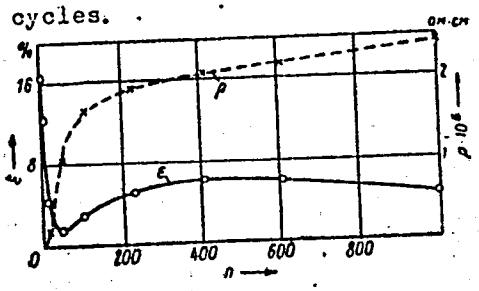


Fig. 2: Dependence of the relative elongation ε and of electrical resistivity ρ on the number n cycles.



Card 3/3

S/126/63/015/001/023/029
E073/E151

AUTHORS: Kuznetsov, V.D., Savitskiy, K.V., and Sukharina, N.N.

TITLE: Some features of the structure of white layers

PERIODICAL: Fizika metallov i metallovedeniye, v.15, no.1, 1963, 145-148

TEXT: Friction tests on low-carbon steel (0.09-0.18% C) constantly lubricated with machine oil, gave white surface layers of high microhardness (1000-1300 kg/mm^2), which were blackened by alkaline sodium picrate and retained their hardness up to 800 °C, being removed only after annealing at 850 °C. Specimens with white layers were annealed in vacuo at 300-850 °C either in steps at 100 °C intervals, or at one temperature only. At low temperatures the polished sections showed no etching of the white layer in nitric acid but the layer showed individual spots with fine dark inclusions. After annealing above 400 °C the dark spots increased and could be observed on the unetched specimens at low magnification, and after annealing at 700-800 °C the surface layer was still hard (660-980 kg/mm^2) and would not etch, but regions formed which appeared to be covered with dark spots, particularly where the hardness was greatest. At 800 °C the white layer

Card 1/2

decomposed, but the pearlite formed represented a higher carbon content than the original steel; some graphite was observed, and at 650 °C decomposition into pearlite and graphite was complete, with a ferritic zone surrounding the original white layer. The amount of graphite observed was small, possibly due to diffusion during annealing. The behaviour of the non-etching white layer may be explained by the fact that the hardness of un-annealed white layers with graphite inclusions was 800-900 kg/mm^2, i.e. very much less than continuous white layers, which were 1000-1300 kg/mm^2. Differences in results obtained by other workers on the effect of the white layer on wear resistance may be due to differences in the mode of origin of the white layers, resulting in carbides of differing thermal stability. Friction in low-carbon steels may cause the formation of carbides which partially decompose to form graphite. There are 3 figures.

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy nauchno-issledovatel'skiy institut (Siberian Physico-technical Scientific Research Institute)

Card 2/2

SUBMITTED: June 12, 1962

IZV. VYS. UCHEB. ZAV. CHERN.

1965

KUZNETSOV, V.D. [deceased]; SAVITSKIY, K.V.; KOGAN, Yu.I.; KUDRINA, M.P.

Thermal recovery of ghost lines. Izv. vys. ucheb. zav.; chern. met. 7 no.8:129-134 '64. (MIRA 17:9)

1. Sibirskiy fiziko-tekhnicheskiy nauchno-issledovatel'skiy institut.

L 42112-66 EWT(1)/T WR

ACC NR: AP6019010 SOURCE CODE: UR/0106/66/000/006/0020/0027

AUTHOR: Kuznetsov, V. D.; Paramonov, V. K.

56
B

ORG: none

TITLE: Cophased antenna with an active broadband reflector

SOURCE: AN SSSR. Vestnik, no. 6, 1966, 20-27

TOPIC TAGS: antenna array, dipole antenna, antenna radiation pattern, broadband communication

ABSTRACT: A unidirectional cophased dipole antenna array with an active reflector fed by a directional coupler is analyzed. It is shown that, with certain chosen parameters (coupling coefficient, dipole and feeder characteristic impedances), this antenna maintains high directivity with good matching and efficiency characteristics in a wide frequency band without re-adjustments.

Cophased dipole antenna arrays are usually constructed in two sections, an active section fed by the transmitter and a passive reflector section in which the amplitude and phase of the currents are stub tuned to adjust the reactive part of the antenna impedance. Antenna current components from the active and passive sections add in the forward direction and cancel each other in the opposite direction, giving rise to antenna directivity. In other types of systems the reflector may also be active, but special transformers must be used to insure proper amplitude and phase relationships between

Card 1/6 UDC: 621.3.018.8+621.3.018.12

the currents. In both types the antennas are directional at the operating frequency only. At frequencies slightly removed from the optimum, the front-to-back directivity ratio deteriorates, the antennas are no longer properly matched to the feed system, and the efficiency decreases accordingly.

The authors report on a new driven cophased dipole antenna system comprising two arrays, each containing two sections of four horizontal two-section dipoles placed one above another. Each dipole section consists of four conductors which form the corners of a parallelepiped. Individual antenna down-leads are used for each dipole array, and the current phases are therefore equal. The opposite ends of these down-leads are connected to a directional coupler which channels the currents with proper amplitudes to corresponding dipoles.

This antenna system may be analyzed by assuming that each array may be replaced by an equivalent dipole with a corresponding radiation impedance equal to the sum of all actual dipole impedances, including the effect of mutual interaction between the main dipoles and the directors. For purposes of analysis, the reflector dipoles may also be analogously treated as one dipole. The calculations performed by the authors apply

to an antenna system with the following parameters: distance (t) between the center lines of adjoining four-dipole columns, 430 mm; diameter of each conductor used to form a dipole arm, 0.00093 t; diagonal of the transverse cross section of the parallelepiped formed by the conductors, 0.0745 t; length of each dipole arm, 0.42 t; vertical distance between dipoles, 0.581 t; distance between the two arrays, 0.337 t; characteristic impedance of each dipole feeder, 300 ohm; directional coupler length, 0.3 t; maximum directional coupler current splitting factor, 0.2.

The authors develop expressions for the resistive and reactive components of self- and mutual impedances of the equivalent dipoles as functions of l/λ (where l is the dipole arm length and λ the wavelength). From these expressions and the directional coupler parameters, the basic antenna performance factors such as the antenna radiation patterns, the input traveling wave ratio, the antenna efficiency, and the back-to-front ratio are determined. The deviations are based on a previous work on a driven cophased two-dipole antenna fed through a directional coupler. The theoretical and experimental curves for the traveling wave ratio (TWR), efficiency (η), and back-to-front ratio (B/F) are shown in Figs. 1, 2, and 3, respectively. The experimental results were obtained for the

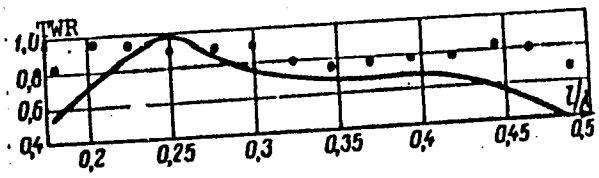


Fig. 1. Traveling wave ratio as a function of $1/\lambda$

Solid line - theoretical; dots - experimental.

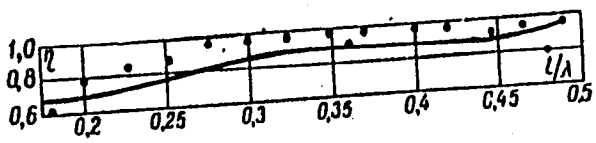


Fig. 2. Efficiency as a function of $1/\lambda$

Solid line - theoretical; dots - experimental.

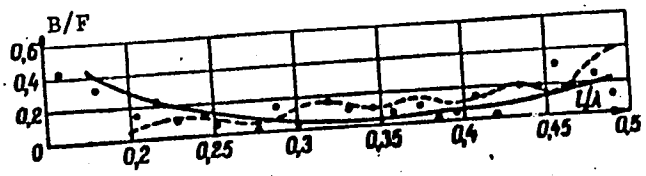


Fig. 3. Back-to-front directivity ratio as a function of $1/\lambda$

Solid line - theoretical; dots - experimental; broken line - antenna with nonperiodic reflector.

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000928210002-7"

antenna whose dimensions were given above. Each array in the experimental setup was fed by a coaxial cable, and the dipoles were driven through a symmetric 300-ohm KATV cable. The frequency range used in the test was limited to the band between 300 and 900 Mc. Both the general pattern shape and the half-power beam widths of the radiation patterns [not supplied] are said to conform to the theoretical patterns. It is apparent from the theoretical curves that the antenna is highly unidirectional (the B/F ratio does not exceed 0.1, 0.2, or 0.3 in the 1.6:1, 2.1:1, or 2.5:1 frequency ranges, respectively). A good match between the antenna proper and the feed system is evident from the high TWR (0.7 for most of the range). The efficiency is 90% at short wavelengths and 70% at longer wavelengths.

One of the salient features of the antenna system is its ability to maintain its performance level even when the parameters of its components are sub-optimal. For example, the length of the directional coupler does not affect the basic antenna characteristics. The dipole array dimensions are not critical and may be made equal to the corresponding dimensions of typical cophased dipole arrays, i.e., distance between arrays, $\lambda_0/4$; vertical distance between individual dipoles, $\lambda_0/2$; and dipole arm length, $0.42\lambda_0$ (where λ_0 is the fundamental antenna wavelength). The only

relatively critical parameter is the dipole impedance, which tends to extend the antenna frequency range and assures a good match between components if it is low.

For comparison, the broken line in Fig. 3 represents the B/F directivity ratio of a cophased antenna with nonperiodic reflector, i.e., a reflector in the form of a curtain of parallel conductors separated by a distance of 0.035 t. From this and other comparisons, it was concluded that the performance of the new antenna is equal to or better than that of an array with nonperiodic reflector or a cophased dipole antenna array in which the reflector is tuned at each frequency. Orig. art. has: 11 formulas and 12 figures. [FSB: v. 2, no. 8]

SUB CODE: 09, 17 / SUBM DATE: 090ct65 / ORIG REF: 002

L 39678-66 EWT(1)/T WR/GD-2
ACC NR: AP6009497 SOURCE CODE: UR/0106/66/000/003/0026/0032

AUTHOR: Kuznetsov, V. D.; Paramonov, V. K.

ORG: none

TITLE: Radiator with a reflector supplied through a directional coupler

SOURCE: Elektrosvyaz', no. 3, 1966, 26-32

TOPIC TAGS: antenna, radio antenna, broadband antenna, UHF antenna

ABSTRACT: The radiator-reflector antenna element ensures good directional pattern but has a narrow-band characteristic. To widen its band, insertion of a suitable directional coupler between the radiator and reflector is suggested. Formulas are developed which determine the conditions (coupling factor, characteristic impedances of the rods and feeders, etc.) under which such an element possesses good directivity, good matching, and high efficiency.

UDC: 621.396.677.81

Card 1/2

L 39678-66
ACC NR: AP6009497

Experimental verification of the new formulas included measuring the TW factor, efficiency, and front-to-back ratio of a 4-prong antenna system within a 300—800-Mc band. The experimental data was slightly better than estimated; hence, the new formulas are recommended for rough estimation of such antenna systems. Orig. art. has: 6 figures and 33 formulas.

SUB CODE: 09 / SUBM DATE: 09Oct65 / ORIG REF: 001

Card 2/2 BLD

L 38991-66 EWT(1)/T WR

ACC NR: AP6023600 SOURCE CODE: UR/0106/66/000/007/0017/0024

47 B

AUTHOR: Kuznetsov, V. D.; Paramonov, V. K.

ORG: none 25B

TITLE: Remodeling of tuned cophasal arrays into broadband antennas

SOURCE: Elektrosvyaz', no. 7, 1966, 17-24

TOPIC TAGS: phased array antenna, broadband antenna, antenna engineering

ABSTRACT: A tuned-reflector cophasal array can be re-connected into an active-reflector broadband antenna; the reflector is fed via a directional coupler. The method of connection of four tiers of radiating elements of a stacked antenna is shown (see Fig. 1) for (a) multiple-feed array and (b) paired-feed array. A model of "b"-type antenna was tested at 360—680 Mc; plots of its traveling-wave ratio, efficiency, and back-to-front ratio vs. frequency are shown. A scheme for remodeling a tuned cophasal array with a controllable directional pattern is given. Four transmitting

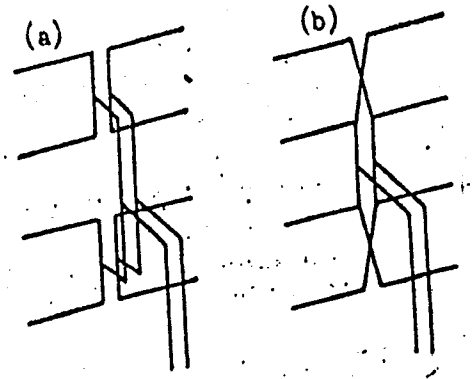


Fig. 1. Multiple-feed array and paired-feed array

UDC: 621.396.67.012.12

Card 1/2

L 38991-66

ACC NR: AP6023600

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cophasal arrays were actually remodeled; their directional patterns practically coincided (except for some side-lobe and rear-lobe areas) with those of the original antennas. It is claimed that such a remodeled antenna is not inferior to the original tuned-reflector array insofar as its directivity and matching to its feeder are concerned; its efficiency is sufficiently high. Orig. art. has: 10 figures and 4 formulas. [03]

SUB CODE: 09 / SUBM DATE: 090ct65 / ORIG REF: 002/ ATD PRESS: 5050

Card 2/2 HDJ

KUZNETSOV, V. D., Eng.

"Investigation of a Short-Wave Antenna." Thesis for degree of Cand. Technical Sci. Sub 10 June 49, Moscow Order of Lenin Power Engineering Inst imeni V. M. Molotov.

Summary 82, 18 Dec 52, Dissertations Presented for Degrees in Science and Engineering in Moscow in 1949. From Vechernyaya Moskva, Jan-Dec 1949.

DOMEROVSKIY, I.A.; KUZNETSOV, V.D., redaktor; YAKOBSON, A.Kh., redaktor; VEINTRAUB, L.B., tekhnicheskiy redaktor.

[Antennas] Antenny. Moskva, Gos. izd-vo lit-ry po voprosam sviazi i radio, 1951. 362 p. [Microfilm] (MIRA 8:4)
(Antennas (Electronics))

KUZNETSOV, V.

Oct 51

USSR/Radio - Dosaaf

"Further Intensification in the Work of the Dosaaf (Voluntary Society for Cooperation with the Army, Aviation, and Fleet)," V. Kuznetsov, Chm of the Organization Committee of Dosaaf

"Radio" No 10, pp 1-3

In the radiofication movement, radio amateurs repaired and installed more than 10,000 radio receivers, about 200 wired radio centers, and 6,000 loudspeakers in rural areas, according to incomplete figures for 1951. Good results were also obtained in competitions.

208T44

KUZNETSOV, V.

"The significance of the activity of radio enthusiasts," Radio, No. 5, Publication of the Min. of Communication, 1952.

1. KUZNETSOV, V.

2. USSR (600)

4. Television-Antennas

7. Collective television antenna. Radio no. 11, 1952.

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

KUZNETSOV, V.

"Aircraft Radar," from the journal Patriot Rodiny, 11 January 1953, p. 4

D-82531, 17 Sep 54

KUZNETSOV, V., kandidat tekhnicheskikh nauk.

Radio mirages. Tekh.mol.22 no.2:24-27 F '54. (MLRA 7:2)
(Radio waves)

KUZNETSOV, V.D.

Shunt vibrators. Radiotekhnika 10 no.10:57-65 O '55. (MLRA 9:1)
(Electric current converters)

Kuznetsov, V. D.

AID P - 4539

Subject : USSR/Electronics

Card 1/2 Pub. 90 - 2/9

Author : Kuznetsov, V. D.

Title : Reflector Antenna System

Periodical : Radiotekhnika, 3, 4-15, Mr 1956

Abstract : The author analyses the performance of a reflector antenna system in which the antenna with the primary radiator are on the ground and a tilting reflector reflecting the waves from the emitting antenna in the desired direction is placed on a tower. The author enumerates the advantages and disadvantages of such a system. He finds analytically the optimal surface shapes of the antenna and of the upper reflector which he states to be ellipsoidal and paraboloidal respectively. He finds the efficiency of power transmission from the lower to the upper reflector, the amplification factor of the upper reflector, its directional characteristics, and a formula for the optimal shape of the lower antenna if for practical

KUZNETSOV, V. Cand. Tech. Sci.

"The Development of Radioelectronics in the USSR," Voyennyy Svyazist, No.5, 1956

KUZNETSOV, V. D. and SOKOLOV, A. V.

"Protective Ability and Decoupling in a Periscopic Antenna System," by V. D. Kuznetsov and A. V. Sokolov, Elektrosvyaz', No 1, Jan 57, pp 17-20

A series of experiments were conducted with a multichannel microwave radio-relay system "periscopic" antenna to determine protective ability from the interference of adjacent channels.

It was estimated that for a relay system with 240 or more channels having a distance of 1,000 km or more, the protective ability of the antennas should be at least 60 decibels to assure a satisfactory two-frequency communication system. The form and dimensions of the antenna components were as follows: the upper reflector was continuous, flat, inclined 45° and 3.2 m in diameter; the lower reflector was a continuous, concave ellipsoid of rotation, with a 3.2-m diameter circle in its horizontal projection. The radiating element was in the form of a one-meter horn with a 45 cm square mouth. The gain of the antenna system was about 30 db and the losses in the reflector system about 3 db, when operating in the frequency range of 2,000 Mc. Three types of relay towers, 45, 55, and 75 m high, were involved in the test; the distance between the two upper reflectorsand the two lower reflectors for the 55-meter tower were 9.6 and 14 m, respectively.

The results obtained in the experiment led to the conclusion that a periscopic antenna system of the described construction can protect reception up to 60 db, provided different polarizations are applied to the signals traveling in the opposite directions.

Sum 1214

KUZNETSOV, V.D.

108-10-4/11

AUTHOR: Kuznetsov, V.D., Ordinary Member of the Society

TITLE: The System of Collective TV-Reception with 12 Channels (Sistema kollektivnogo priyema televideniya na 12 kanalov)

PERIODICAL: Radiotekhnika, 1957, Vol. 12, Nr 10, pp. 31- 39 (USSR)

ABSTRACT: With respect to the necessity to develop a system which considers the development of TV for an important period, the author gives a system here which meets with the following basic demands: it is suitable for a frequency range of from 48,5 + 100 and from 175 + 230 M cycles (12 channels for TV and ultra-short-wave transmissions); it secures the reception of any channels in the given ranges without changes. The system has the same distribution network as the old systems, which can be adjusted without cable-exchange or - laying. The costs are higher than those of old systems. The system consists of the antenna itself, of one or more mains with branch-off devices and customer lines. An amplifier is built into the system in the case of weak signals or of a great number of mains working from one antenna. A special directional antenna, which was built according to the system of the

Card 1/2

108-10-4/11

The System of Collective TV-Reception with 12 Channels

traveling-wave antenna with direct connection of the oscillators with the feedline, was worked out. The new antenna differs from existing traveling-wave antennae by the oscillator bent to the front and becoming gradually shorter as well as by the increase of the wave resistance of the common main toward the end of the antenna. The author shows that in some cases it is useful to use a simpler weak directional antenna. If branch-offs are connected care must be taken that no important reflexions occur. This can be reached by the introduction of additional effective resistances to the branch-offs. Two different types of amplifier devices as well as for the calculation of the system are given. There are 14 figures.

SUBMITTED: July 3, 1957
ASSOCIATION: Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi im. A.S. Popova
AVAILABLE: Library of Congress

Card 2/2

KUZNETSOV, V.D.

ANTENNAS

"In-Phase (Broadside) Broadband Shortwave Antennas", by G.Z. Ayzenberg, V.D. Kuznetsov and L.K. Olifin, Elektrosvyaz', No 1, January 1958, pp 15-21.

Description of two variants of broadside antennas, one with a tuning reflector and one with an aperiodic reflector. Theoretical and experimental directivity patterns are given for the first of these antennas in the horizontal and vertical planes. Curves for the gain and directivity vs. wavelength are also given. The matching of the antenna with the supply feeder over the operating range is experimentally investigated.

Card 1/1

AUTHORS: Ayzenberg, G.Z., Kuznetsov, V.D. and Olifin, L.K.

TITLE: A Co-phasal, Shortwave Wideband Antenna with an Aperiodic Reflector (Sinfaznaya diapazonnaya korotkovolnovaya antenna s aperiodicheskim reflektorom)

PERIODICAL: Elektrosvyaz', 1958, Nr 3, pp 21 - 28 (USSR)

ABSTRACT: A continuation of a previous article (Ref.1). The results of a theoretical and experimental investigation into the design of an antenna system with an aperiodic reflector are produced. The constructional features of antennae SGD4/4RA and SGD4/4RN are described. The layout of antenna SGD4/4RA is shown in Fig.1. The reflector is in the form of a grid consisting of horizontal conducting rods. The width b of the reflector is given by:

$$b = A + 0.18\lambda_0 \qquad (1)$$

where λ_0 is the mid-frequency and A is the width of the antenna itself. The height h_p of the reflector (Fig.2) is somewhat greater than the distance between the upper and lower resonators of the antenna. Curves showing the change of antenna gain with change of reflector height for waves $\lambda = 0.9\lambda_0$

Card 1/4

A Co-phasal, Shortwave Wideband Antenna with an Aperiodic Reflector

and $1.8\lambda_0$ are given in Fig.2. The diameter of the rods and their spacing are calculated so that the coefficient δ for the passage of energy through the reflector will not exceed a particular value. The coefficient δ is calculated from the formula:

$$\delta = \frac{P_{np}}{P_0} = \frac{1}{\left(1 + \frac{\lambda}{2d_0 \ln \frac{2\pi r_0}{d_0}}\right)^2} \qquad (2)$$

where P_{np} is the energy passing through the metallic net, P_0 is the energy of the incident wave, d_0 is the spacing between the rods, r_0 is the radius of the rods and λ is the wavelength. Experimental investigation using a decimetric model showed that for $\delta = 0.4$, the backward radiation did not exceed $0.3E_{max}$ over the whole working range which was

A Co-phasal, Shortwave Wideband Antenna with an Aperiodic Reflector

considered satisfactory. This gave $r_o = 0.0002l\lambda_o$ and $d_o = 0.073\lambda_o$. The distance between the antenna and the reflector ($d_2 = 0.23\lambda_o$) is a compromise between good, directional properties and satisfactory matching to the feeders. The horizontal polar diagrams can be calculated by:

$$F(\varphi) = \frac{\cos(\alpha l \sin\varphi) - \cos\alpha l}{\cos\varphi} \cdot \frac{\sin\left(n_2 \frac{\alpha d \sin\varphi + \psi}{2}\right)}{\sin\left(\frac{\alpha d \sin\varphi + \psi}{2}\right)} \sin\left(\frac{\alpha d_2}{2}\cos\varphi\right) \qquad (3)$$

and the vertical diagram by:

$$F(\Delta) = n_2(1 - \cos\alpha l) \frac{\sin\left(n_1 \frac{\alpha d_1}{2}\sin\Delta\right)}{\sin\left(\frac{\alpha d_1}{2}\sin\Delta\right)} \sin\left(\frac{\alpha d_2}{2}\cos\Delta\right) \sin(\alpha H_{cp}\sin\Delta) \qquad (4)$$

106-58-3-3/19

A Co-phasal, Shortwave Wideband Antenna with an Aperiodic Reflector

These equations were developed in the previous article. Experimental and calculated results are given in Figs. 3 and 4. The gain of the antenna was taken as in the previous article. There are 8 figures and 2 Soviet references, and 1 table.

SUBMITTED: September 7, 1957

AVAILABLE: Library of Congress

Card 4/4 1. Broadband antennas-Characteristics 2. Antenna reflectors-Application
3. Mathematics-Theory

KUZNETSOV, V.D.

10 июня

(с 10 до 16 часов)

Ю. К. Муравьев

Новый метод приближенного решения интегрального уравнения теории антенн.

В. Н. Таланов

К вопросу о возбуждении диэлектрических волноводов.

О. Г. Вендик.

Синтез линейных излучателей с электрическим качанием луча.

10 июня

(с 18 до 22 часов)

Г. З. [illegible]

Фокусирующие свойства дифракционных отражателей (решеток).

А. Н. [illegible]

Метод измерения коэффициента направленного действия антенн на малых расстояниях.

В. С. [illegible],

Н. А. [illegible]

Влияние условий распространения на антенны, работающие по линиям, [illegible]

С. И. Белоусов

Антенна бегущей волны для приема средних волн

В. Д. Кузнецов,

~~А. Н. [illegible]~~

Система многократного использования сложных [illegible] антенн

11 июня

(с 10 до 16 часов)

Н. С. [illegible]

Дифракция электромагнитных волн на конце [illegible] линии

В. С. [illegible]

Расчет [illegible]

В. Н. Васильев

О статистических характеристиках коэффициента отражения волны в случае неоднородных линий передачи

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

KUZNETSOV, V.D.

82178

S/106/60/000/07/02/005

9,1200

AUTHORS: Kuznetsov, V.D., Paramonov, V.K.

TITLE: A Highly Effective VHF Antenna With a Low Fringe Radiation Level and a Controllable Radiation Pattern

PERIODICAL: Elektrosvyaz', 1960, No. 7, pp. 18 - 28

TEXT: The authors describe methods and results of calculations and the experimental investigation of a wideband reflector antenna, designed for use on VHF communication lines with atmospheric scattering. The antenna (Fig. 1) is part of a horizontal parabolic cylinder. The exciter consists of a system of Nadenko dipole vibrators and one reflector. The vibrators are suspended on the metallized surface of the earth in such a way that the reflector, together with the earth's surface forms the 90° V-reflector of the exciter. The latter is arranged in such a way that its line of phase centers coincides with the focal line of the parabolic cylinder. The antenna produces a directivity pattern in the vertical plane with small side lobes. The location of the exciter in the immediate vicinity of the earth's surface simplifies the antenna feed system and reduces the influence of the exciter on the antenna directivity pattern. Using a linear exciter in the form of a horizontal vibrator row pro-

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A Highly Effective VHF Antenna With a Low Fringe Radiation Level and a Controllable Radiation Pattern

vides a control of the antenna directivity pattern in the horizontal plane by phasing the vibrator currents. This also permits the multiple use of one antenna for reception. The necessity of using curved supports is one of the disadvantages of the antenna. Preliminary calculations show that this does not cause extraordinary difficulties in the antenna design, since only two or three supports are required. The basic antenna dimensions are selected according to the required antenna gain, the width of the directivity patterns in horizontal and vertical planes and the angle of main lobe inclination in the vertical plane. For communication lines operating in the 5 - 10 m range over distances of 1,000 - 1,500 km, the following antenna dimensions are recommended: height of the aperture, H = 40 m; focal distance, f = 20 m; width of the aperture, a ≈ 45 - 50 m (eight vibrators in the exciter); height of the exciter reflector, h_r = = 4 m. In practice, the basic antenna reflector and the exciter reflector are a single-line wire lattice. The distance between the wires is determined by the required re-radiation attenuation magnitude. To obtain an essential reduction of the side lobe level of the directivity pattern in the horizontal plane, the vibrators of the exciter must be fed with an amplitude drop from the

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S/106/60/000/07/02/005

A Highly Effective VHF Antenna With a Low Fringe Radiation Level and a Controllable Radiation Pattern

center to the borders of the exciter. Vibrators having an equal distance from the exciter center are connected in parallel (Fig. 2) to provide a control of the directivity pattern. The mathematical analysis of this antenna is given. Equations are given for the directivity patterns in the vertical and horizontal planes, the directive gain and the antenna gain. The experimental investigations were performed on a centimeter model (1 : 200), on a decimeter model (1 : 17) and on a model of the exciter in actual dimensions. All measurements confirmed the correctness of the basic theoretical assumptions and calculations. The experimental results are shown in graphs (Fig. 8 - 11). There are 11 diagrams and 1 Soviet reference.

SUBMITTED: January 25, 1960

LH

Card 3/3

24074

S/106/61/000/002/003/006
A055/A133

9.1911

AUTHORS: Kuznetsov, V. D. and Paramonov, V. K.

TITLE: Device for controlling the radiation pattern of a multiple wide-band antenna with a low side-lobe level

PERIODICAL: Elektrosvyaz', no. 2, 1961, 23 - 30

TEXT: One of the main components of a steerable antenna - or rather of its feeding system - is the phasing device. The practical setup of this device depends on the particular features of the feeding system. The authors describe in the present article a phasing device designed for an eight-unit receiving antenna, whose feeding system uses unbalanced coaxial cables with wave impedance W ≈ 75 ohms. This device is intended for operation on wavelengths $\lambda = 5 - 10$ m. It allows to control the antenna radiation pattern within the angle-limits $\varphi_0 \pm$ 24o (the distance between the centers of the outermost antenna-units being 38.5m). This phasing device (see Fig. 3) consists of four unbalanced artificial lines 1 with 75-ohm wave impedance. These lines are formed by identical π-shaped elementary cells C, the radius-ratio of the four concentric semi-circumferences being 1, 3, 5 and 7 respectively. Every cell is connected to a knob-shaped contact

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Device for controlling the radiation pattern ...

K, the brushes of the slider S1 sliding on these contacts. The slider is also an unbalanced line. To ensure matching in the points of the moving contacts, the wave impedance of this line varies by steps (from brush to brush), its value being respectively 37.5, 18.75, 12.5 and 9.4 ohms. The matching of the receivers is ensured by a special transformer Tr. Attenuators A are inserted, for simplex operation, between the ends of the artificial lines and the output plugs p. (Some theoretical and practical data are given by the author with respect to the parameters of the elementary cells, of the artificial lines and of transformer Tr). Besides the problem of matching the antenna-units to the 75-ohm wave impedance cable, there arises the problem of balancing, an unbalanced coaxial cable being connected to the symmetrical antenna-system. The solution of these problems involves difficulties in the case of ultrashort waves. A device permitting to overcome these difficulties is described in the second part of the present article. This matching and balancing device (see Fig. 8) is based upon the use of the short-wave transformer described by G. Z. Aisenberg [Ref. 1: Antenny dlya magistral'nykh radiosvyazey ("Antennae for national radio-communications"), Svyaz'izdat., 1948]. Figure 8a shows the connecting diagram of this device, the following method being used for a symmetrical introduction of the emf into the diagram: the inductance L_2 of the correction circuit is divided into two equal parts L_2', each of these two parts having the form of a separate coil made with a thin 75-ohm co-

Device for controlling the radiation pattern ...

axial cable. The coils are connected to the diagram by the ends of the braiding, as shown in Fig. 8c, whereas Fig. 8b shows the way used to couple the two coils, the emf being introduced through the inner conductor of the cable. This device proves entirely satisfactory from the point of view of both matching and balancing, within a wide band of short and ultrashort waves. The author then describes the equipment used for testing the phasing device. Radiation patterns in the horizontal plane were plotted for various settings of the slider. The tests proved that this phasing device allows to control the radiation pattern within a sufficient range of angles. Three radiation patterns are reproduced in the article, for the central setting of the slider and for the 24°-setting (extreme setting). A slight increase in the level of the side-lobes is explained by certain inaccuracies in the length of the artificial lines of the phasing device and of the connecting cables. In the case of transmission antennae, the control of radiation patterns is more complicated. One of the possible controlling devices is briefly described, its deficiencies pointed out, and a method permitting to eliminate these deficiencies is suggested. There are 15 figures and 4 Soviet-bloc references. [Abstracter's note: In Figure 3 1 (line) stands for the Russian Л (liniya), C (cell) for the Russian Я (yacheyka) and Tr (transformer) for the Russian Тр (transformator); but K (standing for knob) and Sl (standing for slider)

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are not translations of the Russian symbols, but an adaption of them, the Russian В standing indeed for "vykhod" (leadout) and ПТ for "polzun-tokos"emnik" (brush slider)].

SUBMITTED: February 25, 1960.

Figure 3:

1) - 1
2) - C
3) - K
4) - Sl
5) - Tr

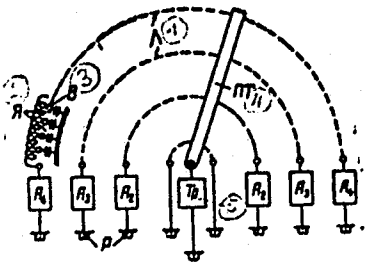

Figure 8:

1) - b
2) - c

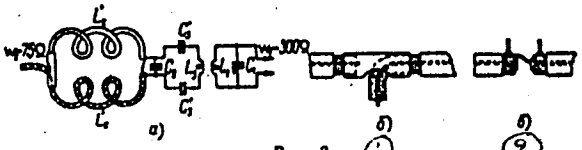

Рис. 8

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29552
S/106/61/000/011/004/006
A055/A127

6,4500 (1159)

AUTHORS: Kuznetsov, V. D. and Paramonov, V.K.

TITLE: Broadband stub in superhigh-frequency systems.

PERIODICAL: Elektrosvyaz', no. 11, 1961, 30 - 34

TEXT: In antenna feeding systems, it is often necessary to ground a d-c or a l-f circuit without deteriorating the h-f circuit parameters. The use of an ordinary quarter-wave stub is possible only in systems operating on one single frequency. In superhigh-frequency work, "metallic insulators" are used. The present article is a short analysis of this broadband insulator or stub in the general case, i.e. not considering the relations between the wave impedances Z_0 (of the line) and Z_T and Z_K. The stub being symmetrical, only one half of it (Figure 2) will be examined here. The input admittance of the transforming part of the stub (from the side of point A) at frequency f corresponding to the wavelength λ is given by:

$$Y_{inp\ T} = \frac{Z_T + iZ_0\beta}{Z_T Z_0 + iZ_T^2\beta} \qquad (1)$$

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Broadband stub in superhigh-frequency systems

or

$$Y_{inp\ T} = g_{inp\ T} + ib_{inp\ T} = \frac{Z_0 Z_T^2 (1 + \beta^2)}{Z_0^2 Z_T^2 + Z_T^4 \beta^2} + i \frac{\beta Z_T (Z_0^2 - Z_T^2)}{Z_0^2 Z_T^2 + Z_T^4 \beta^2} \qquad (2)$$

where $\beta = tg\alpha l$; $\alpha = \frac{2\pi}{\lambda}$. Analogously, the input admittance of the correcting short-circuited part of the stub in the same point A is:

$$Y_{inp\ K} = ib_{inp\ K} = -\frac{i}{2 Z_K \beta} \qquad (3)$$

The absolute value of the total reactive admittance of the stub in point A is thus

$$b_\Sigma = b_{inp\ T} + b_{inp\ K} = \frac{\beta Z_T (Z_0^2 - Z_T^2)}{Z_0^2 Z_T^2 + Z_T^4 \beta^2} - \frac{1}{2 Z_K \beta}. \qquad (4)$$

The normalized value of this admittance can be written as follows:

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Broadband stub in superhigh-frequency systems

$$b'_{\Sigma} = \frac{b_{\Sigma}}{g_{\Sigma}} = \frac{\beta^2 m - n}{2\beta(1+\beta^2)} \tag{5}$$

where

$$m = 2\left(\frac{z_0}{z_T} - \frac{z_T}{z_0}\right) - \left(\frac{z_T}{z_0}\right)^2 \frac{z_0}{z_K}; \qquad n = \frac{z_0}{z_K} \tag{6}$$

The matching (traveling wave coefficient) at frequency f is:

$$K = \frac{\sqrt{(b'_{\Sigma})^2 + 4} - |b'_{\Sigma}|}{\sqrt{(b'_{\Sigma})^2 + 4} + |b'_{\Sigma}|} \tag{7}$$

Let the working frequency range of the stub be the frequency range within which b'_{Σ} does not exceed the magnitude ξ corresponding to the inflections of function $b'_{\Sigma}(\beta)$ in points $\beta_{1,2}$ (Figure 3). The coordinates of the inflection points are:

$$\beta_{1,2} = \pm\sqrt{\frac{(2m + 6n) + \sqrt{(2m + 6n)^2 + 16mn}}{4m}} \tag{8}$$

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Broadband stub in superhigh-frequency systems

The coordinates of the two other points where the function is equal to ξ are:

$$\beta_{3,4} = \frac{1 - \beta_{1,2}^2}{2\beta_{1,2}} \qquad (10)$$

The working frequency range of the stub is:

$$q = \lambda_{max}/\lambda_{min} = \frac{\operatorname{arctg}\beta_4}{\operatorname{arctg}\beta_3} = \frac{180^\circ - \operatorname{arctg}\beta_3}{\operatorname{arctg}\beta_3} \qquad (11)$$

The calculation of the stub is effected as follows: m and n are determined by Eq. (6). Substitution of the thus found magnitudes in Eq. (8) gives $\beta_{1,2}$. Formula (10) is then used to calculate $\beta_{3,4}$. Substitution of $\beta_{3,4}$ in Eq. (5) gives β'_{Σ}. Formula (7) permits then to find the minimum matching in the working frequency range; the width of this range is determined by means of (11). A graph permitting to calculate K and q is given. The length l must be chosen equal to $\lambda_{mean}/4$, λ_{mean} being determined by the arithmetical mean frequency of the working range. The phase characteristic of the stub can be computed with the aid of formula:

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A055/A127

Broadband stub in superhigh-frequency systems

$$\operatorname{tg}\varphi = \sqrt{\frac{2\frac{Z_K}{Z_T}\beta^2 - 1}{2\frac{Z_K}{Z_T} + 1}} \qquad (12)$$

An experimental check proved that the results obtained with the above set of formulae are sufficiently correct. There are 9 figures and 1 Soviet-bloc reference.

SUBMITTED: January 20, 1961.

Figure 2:

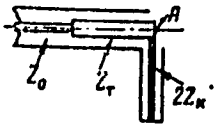
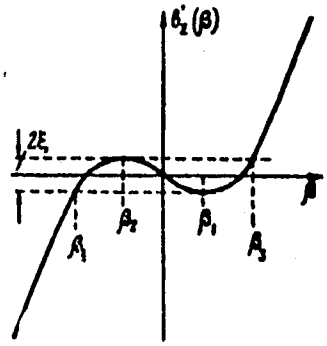


Figure 3:



Card 5/5

S/108/61/016/008/002/006
25520 D280/D304

9.1911

AUTHORS: Kuznetsov, V.D., and Paramonov, V.K., Members of Society (See Association)

TITLE: Installation for studying directional properties of antennae

PERIODICAL: Radiotekhnika, v. 16, no. 8, 1961, 25-32

TEXT: The authors describe a simple arrangement for studying directional properties of antennae. The results are displayed on a C.R.T. in a polar system of coordinates. The display shows either the directional distribution of the field strength or power and permits evaluation of the directive gain of the antennae by means of integration of the polar graphs. The installation has been developed for the study of directional properties of broadcast, TV and communication antennae, whose directional properties have to be taken within a narrow frequency band and are usually given in a linear scale. The bloc diagram of the arrangement is shown in Fig. 1. In taking polar diagrams it works as follows: A h.f. sine or pulse amplitude modulated signal, received by a revolving antenna A is applied through a h.f. filter F to a detector

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Installation for...

D_1. The l.f. detected signal (1000c/s) is applied to the amplifier K, whose load consists of the moving coil of the phase splitter PS synchronized with the motor. The two signals from the fixed coils of PS are detected by a second detector D_2 and through a phase switch are applied to the inputs of the DC channels of the horizontal and vertical deflection systems of CRO type 30-7, (EO-7) with a long persistance screen. The diagram of the phasing switch and of the second detector is also given. The amplifier used has the output voltage proportional, within a certain range, to the square root of the input voltage which for small amplitudes of the signal gives a directional diagram of the field intensity produced by the aerial. Its cct diagram is shown. The anode cct of the last tube has a transformer matching the amplifier output to the inductance of the moving coil of the phase splitter. The primary of this transformer is tuned to 1000c/s. The required amplitude characteristic is obtained as follows: the second tube of the amplifier has its operating point adjusted very near the cut-off. The voltage

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Installation for...

obtained by the rectification of the output is supplied to the grid through a high resistance, (switch S_{w1} open). With the increasing grid current the grid-cathode resistance decreases in proportion to the output voltage of the amplifier. Hence the amplification of the first stage, whose load consists of the grid-cathode resistance, varies inversely proportionally to the output voltage U_{out}, so that $U_{out} = C\sqrt{u_{in}}$ (1) where C - constant. For better smoothing and stability the output signal is rectified in a bridge circuit and applied to the grid of the second tube through an RC filter. The feed back loop has a small time constant and a pass band of several tens of c/s. In this manner, with the speed of antenna revolution corresponding to 15-20 rpm, the beam width of 5-7° of the directional pattern lobes is faithfully reproduced. The frequency response of the amplifier is given in Fig. 5. the 3db points corresponding to approx. 600c/s. For 55db change in input voltage and 27.5 db change in output voltage the amplifier characteristic coincides with the theoretical response. The gain

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Installation for...

of the amplifier is 90 db. at 1000c/s for maximum input voltage. The noise level at the output is 35 db below the maximum output signal. The dynamic range of observations is thus of the order of 30 db. If the study of the side lobes is required with the corresponding radiation below 30 db with respect to that of the main lobe, the generator power should be increased accordingly. Amplifier type 28-IM (IM) was used. The phase splitter was a goniometer, consisting of two perpendicular to each other coils, built as two rectangular frames, with a third coil of the same shape inside the two. A more judicious choice of the phase splitter would be a two-phase variable transformer of type 4BTM 57(4VTM5P) which has a longer gain and a better sinusoidal distribution of voltage in the stator. The above installation permits also the determination of the directive gain of antennae by simple integration of the directional diagrams. The integrating cct consists of the integrating network proper (C=2000 μF and resistors 950,65 and 3.9 kOhm), a 30 μA ammeter and switches SW_2 and SW_3. The procedure of measuring directive gain is given and it is stated that the same reasoning and procedure can be applied to rectangular aperture antennae.

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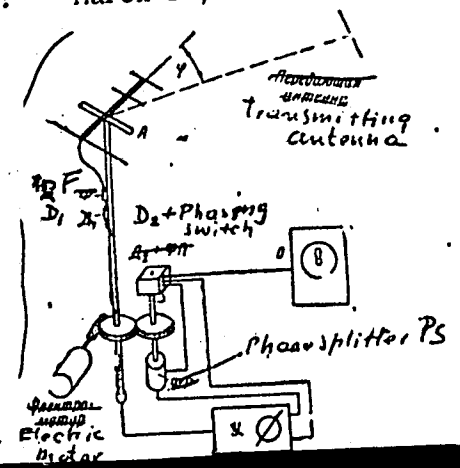
Installation for...

In conclusion, the authors state that the described installation is easy, quick and accurate in actual separation. There are 8 figures and 2 Soviet-bloc references.

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: March 28, 1961

Card 5/5



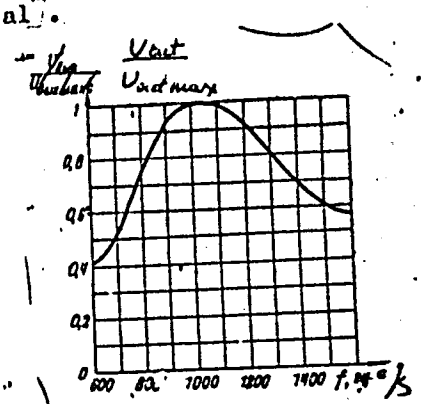


Fig. Pmc. 5

KUZNETSOV, V. D., kand. tekhn. nauk; SOSHNIKOVA, M. V., inzh.

Redesigning of the antenna systems of television stations for transmission of two programs. Vest. sviazi 23 no.4:3-6 Ap '63. (MIRA 16:4)

(Television—Antennas)
(Television—Transmitters and transmission)

KUZNETSOV, V.D.; SOSHNIKOVA, N.V.

Antenna systems of television centers. Elektrosviaz' 18 no.4:1-10 Ap '64. (MIRA 17:6)

ACCESSION NR: AP4037396 S/0106/64/000/005/0009/0013

AUTHOR: Kuznetsov, V. D.; Paramonov, V. K.

TITLE: Selection of antenna height for ionospheric-scatter lines

SOURCE: Elektrosvyaz', no. 5, 1964, 9-13

TOPIC TAGS: radio communication, ionospheric scatter, ionospheric scatter propagation, ionospheric scatter antenna, ionospheric scatter communication

ABSTRACT: Reasons for selecting the antenna mean height H and antenna-aperture height H_A for ionospheric-scatter radio-communication lines are considered. Curves and formulas are given for computing the mean antenna height for any ratio H_A/H. It is found that: (1) With a specified λ/Δ_{max} (where Δ_{max} is the angle of max vertical-plane radiation) in an antenna with the cosine law of aperture vertical excitation, the mean antenna height decreases and the mast utilization factor grows with H_A/H up to $H_A/H = 1$; hence, the antenna gain

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ACCESSION NR: AP4037396

grows more quickly than the total antenna height; in an antenna with a uniform law of aperture excitation, the gain increases only up to $H_A/H = 0.85$ and the mast utilization factor only up to $H_A/H = 0.80$; (2) Using antennas with $H_A/H = 0.25$-0.35, as is often the case on 1.800-2.000-km lines, results in a poor utilization of the mast height; increasing H_A/H to 0.7-0.8 would add 3-4 db to the antenna gain at a cost of adding only 20-30% to the mast height. Orig. art. has: 6 figures and 10 formulas.

ASSOCIATION: none

SUBMITTED: 30Dec63 DATE ACQ: 09Jun64 ENCL: 00

SUB CODE: EC NO REF SOV: 000 OTHER: 000

Card 2/2

ACCESSION NR: AP4014672 S/0108/64/019/001/0018/0030

AUTHOR: Kuznetsov, V. D. (Active member); Paramonov, V. K. (Active member)

TITLE: Stepped directional couplers

SOURCE: Radiotekhnika, v. 19, no. 1, 1964, 18-30

TOPIC TAGS: directional coupler, multistep directional coupler, directional coupler theory, 2 step directional coupler, 3 step directional coupler, power dividing directional coupler

ABSTRACT: A theoretical analysis and the design techniques of multistep directional couplers are presented. The coupler is regarded as a stepped line in which the coefficient of reflection from the input end determines the coupling factor. Formulas for calculating a directional coupler with any relation between the impedances of the principal and the branched circuits are given. An n-step

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ACCESSION NR: AP4014672

directional coupler having an optimum characteristic is analyzed by means of a 2n-power Tchebycheff's polynomial; the extreme case of this characteristic, the so-called maximum-flat characteristic, is also considered. Two- and three-step couplers with the above characteristics are used to illustrate the method of calculation and procedures involved. It is recommended that directional couplers be used in cases requiring power division in a specified ratio (e.g., a multi-element antenna with a controlled radiation pattern). Orig. art. has: 7 figures and 67 formulas.

ASSOCIATION: Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi (Scientific and Technical Society of Radio Engineering and Electrocommunication)

SUBMITTED: 25Jan63 DATE ACQ: 07Feb64 ENCL: 00

SUB CODE: CO, GE NO REF SOV: 003 OTHER: 003

Card 2/2

KUZNETSOV, V.D.; PARAMONOV, V.K.

Problem concerning the choice of antenna height for an ionospheric scatter communication line. Elektrosviaz' 18 no.5: 9-13 My '64 (MIRA 17:8)

KUZNETSOV, V.D.; PARAMONOV, V.K.

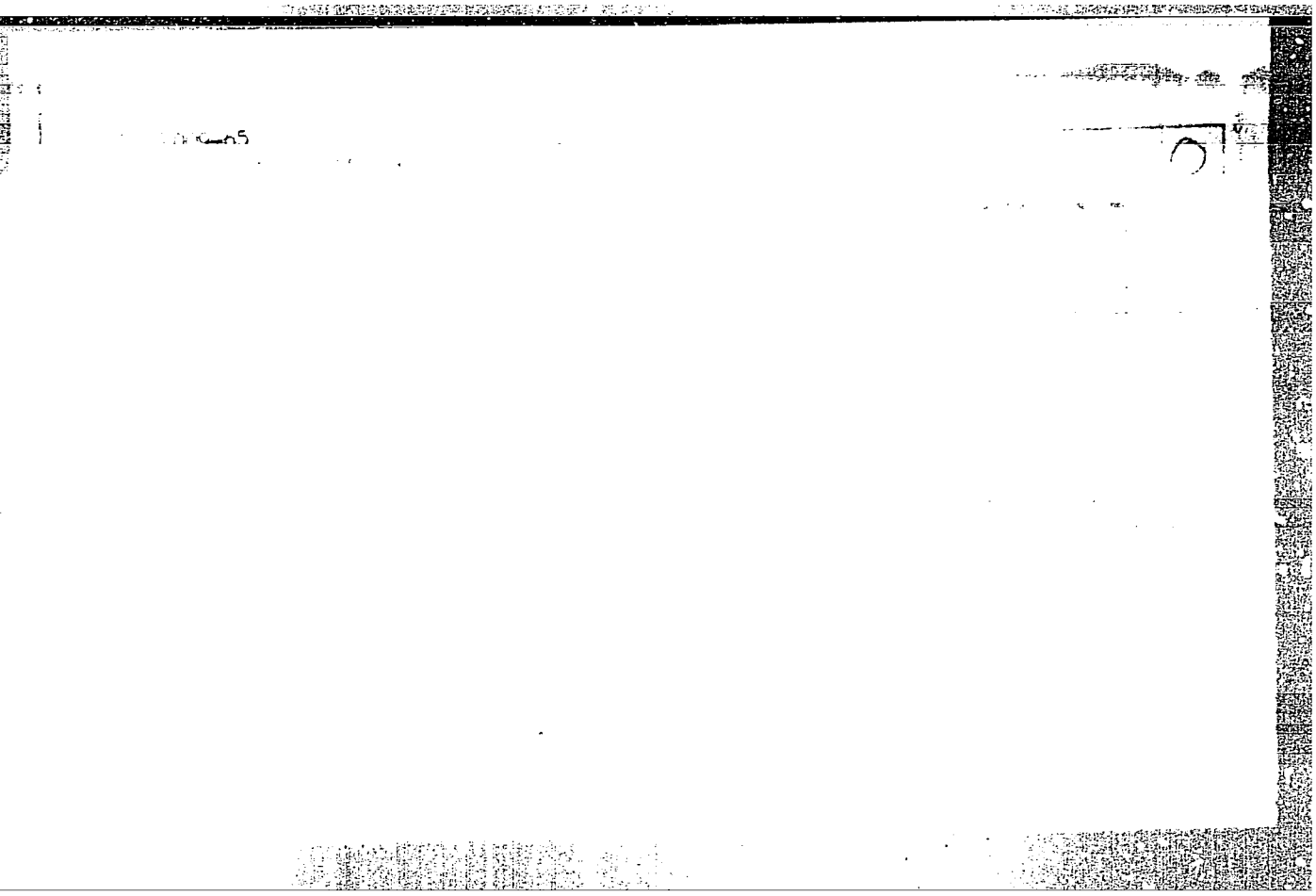
Band balancing adopters. Radiotekhnika 19 no.9:20-23 S '64.
(MIRA 17:10)

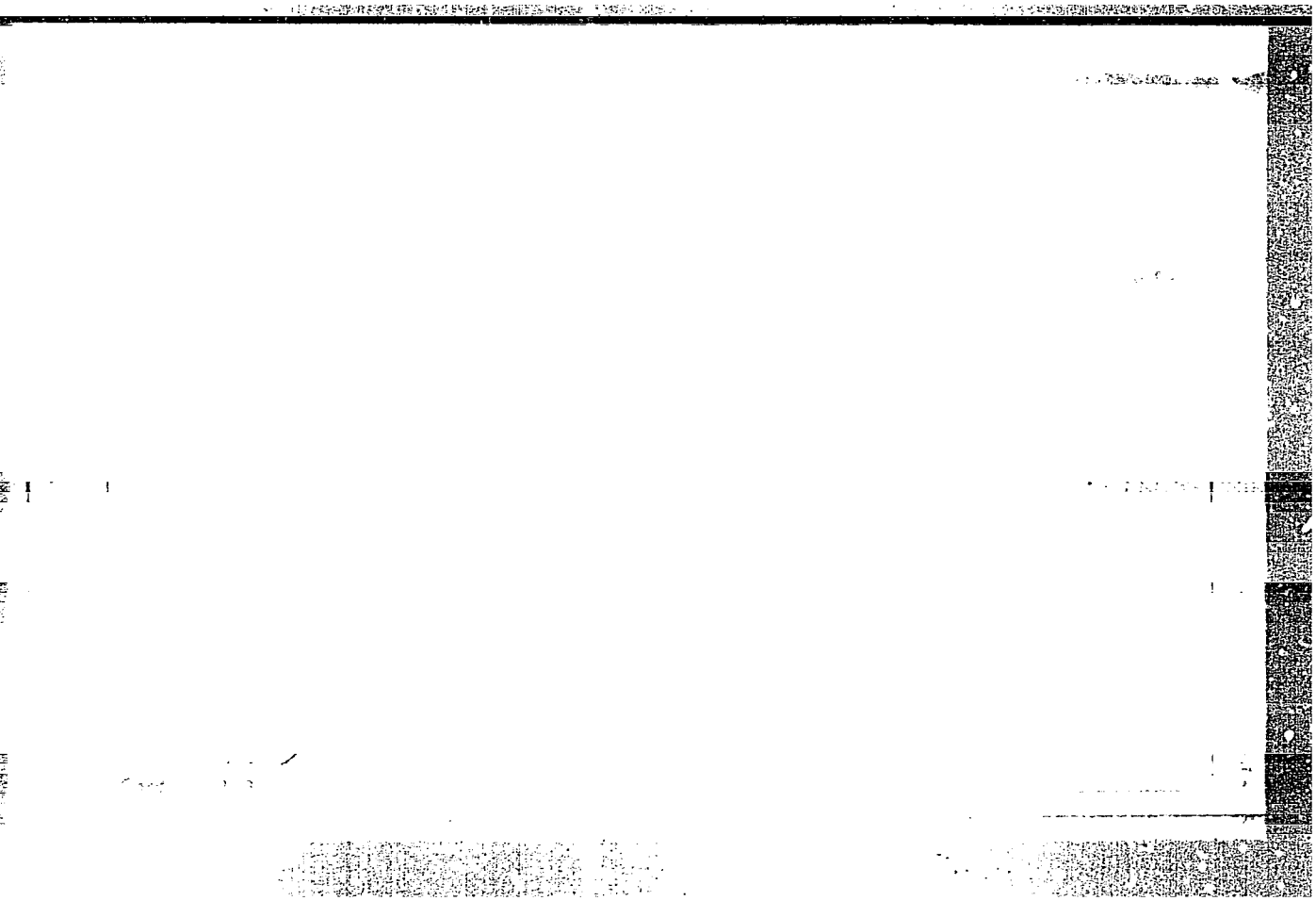
1. Deystvitel'nyye chleny Nauchno-tekhnicheskogo obshchestva radiotekhniki i elektrosvyazi im. A.S. Popova.

TITLE: System for the multipurpose utilization of a uhf receiving antenna 256

[illegible] coupler, phasing

ABSTRACT: A system for the multipurpose utilizati[illegible] of two six-section antennas operating in the meter [illegible] and is described. With this equipment, it is possible to obtain simultaneously up to five independent radiation patterns for each antenna. Each pattern can be directed continuously ±20° in the horizontal plane. The [illegible] includes 10 hf amplifiers, a control and measuring unit, and a phasing [illegible] amplifier with a [illegible] and output [illegible]





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ACC NR: AP6009840 SOURCE CODE: UR/0413/66/000/004/0033/0033

34

INVENTOR: Kuznetsov, V. D.; Paramonov, V. N.

ORG: none

TITLE: Cophased array with active reflector. Class 21, No. 178866

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 4, 1966, 33

TOPIC TAGS: antenna array, antenna configuration, dipole antenna

25B

ABSTRACT: The Author Certificate introduces a cophased antenna array with an active reflector (see Fig. 1) which consists of two identical dipole arrays spaced λ/4 apart.

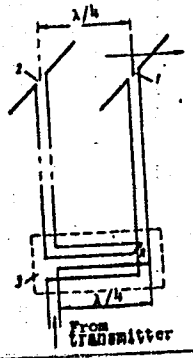

Fig. 1. Cophased array

1 - Radiating dipole; 2 - reflecting dipole;
3 - directional coupler.

UDC: 621.396.677.852

Card 1/2

L 21409-66
ACC NR: AP6009840

To enhance directivity and assure proper matching characteristics over a wide frequency range, the two dipoles are fed from a directional coupler. Orig. art. has: 1 figure. [BD]

SUB CODE: 09/ SUBM DATE: 23Dec63/ ATD PRESS: 4221

Card 2/2 ULR

KUZNETSOV, V.D.
Acad Sci USSR. Inst. of Microbiology.

KUZNETSOV, V.D.: "The microflora of corn extract." Acad Sci USSR. Inst. of Microbiology. Moscow, 1956.
(Dissertation for the Degree of Candidate in Bilogical Sciences)

SO: Knizhnaya Letopis', No. 20, 1956

2

F-3

USSR / Microbiology. Technical Microbiology.

Abs Jour: Ref Zhur-Biol., No 16, 1958, 72014.

Author : Kuznetsov, V. D.
Inst : ~~Not given~~. All-Union Sci Res Inst. of Antibiotics
Title : Microflora of Corn Extract.

Orig Pub: Mikrobiologiya, 1957, 26, No 3, 367-373.

Abstract: In the first stage of the production of corn extract (extraction of corn grains by water containing 0.2% of sulfurous anhydride at 48°), an increase occurs in the number of lactic acid bacteria to 0.574 billion cells per 1 ml, which comprises 99.9% of the total number of microorganisms. Sporogenous bacteria, actinomyces, yeasts and molds are also encountered in small amounts. A description of strains belonging to p. Lactobacillus which in the opinion of the

Card 1/3

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USSR / Microbiology. Technical Microbiology. F-3

Abs Jour: Ref Zhur-Biol., No 16, 1958, 72014.

Abstract: author differ from all the species described of lactic acid bacteria is given. In the second stage of the process (settling of the extract into wooden receptacles), an intensive multiplication of the yeast fungi occurs, which is explained by the low temperature of 30-38°. In addition, the dominating species (80%) is Torulopsis molischiana; T. colliculosa, Mycotorula variabilis are also encountered. During steaming of the corn extract the yeasts, and partially the lactic acid bacteria, die. Complete death of the latter occurs toward the end of the 2-3rd month of storage of the prepared extract. A correlation was established between the changes in the composition of the microflora and deterioration of the extract quality. Extracts of poor-

Card 2/3

USSR / Microbiology. Technical Microbiology. F-3

Abs Jour: Ref Zhur-Biol., No 16, 1958, 72014.

Abstract: ost quality are usually obtained at the beginning of the recycling. In addition, in the recycled water, short bacilli-like forms of lactic acid bacteria predominate which form small transparent colonies of irregular form. When good quality extract is obtained, lactic acid bacteria which possess long cells and form comparatively large opaque colonies of fibrous construction predominate. The latter form more lactic acid than short forms under productive conditions. -- N. O. Blinov.

Card 3/3

19

F

Country : USSR
Category : Microbiology. Antibiosis and Symbiosis. Antibiotics.

Abs. Jour : Ref Zhur-Biol., No 23, 1958, No 103716

Author : Kuznatsov, V. D.
Institut. : --
Title : The Effect of Microorganisms on the Quality of Corn Extract

Orig Pub. : Mikrobiologiya, 1957, 26, No 4, 481-484

Abstract : A study was made of the influence of lactic-acid bacteria, putrefactive bacteria and yeasts, isolated from the wash water and concentrated corn extract, on the quality of corn extract prepared in different ways. Nutritive media for the growth of globisporin, streptomycin and penicillin producers were prepared from the extracts infected by the microorganisms. After the infection of all the samples with a mixture of microbes the development of only the yeasts and lactic-acid bacteria was observed. The yeasts increased the globisporin yield by 1.2 to 1.3 times. Fermentation of the extract by the lactic-acid bacteria increased the yield

Card: 1/2

Country :
Category : F

Abs. Jour :Ref Zhur-Biol., No 23, 1958, No103716

Author :
Institut. :
Title :

Orig Pub. :

Abstract :of aureomycin and penicillin producers but not of
(Cont.) streptomycin producers. Fermentation by a mixture
of lactic-acid bacteria and yeasts increased the yield
of streptomycin and penicillin. After the extract
was infected by putrefactive bacteria alone its quality
was markedly impoverished.--V. G. Makarevich.

Card: 2/2

F

USSR/Microbiology - Microbes Pathogenic for Man and Animals.
Drucellae

Abs Jour : Ref Zhur Biol., No 22, 1958, 99429

Author : Kuznetsov, V.D.

Inst : Moscow Technological Institute of the Meat and Dairy Industry.

Title : Utilization of the Reaction of Agglutination in the Diagnosis of Drucellosis of Sheep and Goats.

Orig Pub : Sb. stud. rabot. Mosk. tekhnol. in-t myasn. i molochn. prom-sti, 1958, vyp. 5, 90-91

Abstract : No abstract.

Card 1/1

KUZNETSOV, V.D.

Antagonistic properties of Actinomyces isolated from soils of the Transbaikal region. Antibiotiki 3 no.5:9-13 S-O '58. (MIRA 12:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov.
(SOIL, microbiology,
Actinomyces, strains antag. to other microorganisms (Rus))
(ACTINOMYCES,
strains antag. to other microorganism in soil (Rus))

KUZNETSOV, V.D., kand.biol.nauk

Actinomyces, promoting and inhibiting the growth of certain bacteria under monocultures. Agrobiologiia no.1:134-136 Ja-F '59. (MIRA 12:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov, g. Moskva.
(Actinomyces) (Soil micro-organisms)

KUZNETSOV, V.D.

Actinomyces in the shore soils of Lake Yamkun. Mikrobiologiia 28 no.2:257-263 Mr-Ap '59. (MIRA 12:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov, Moskva.

(ACTINOMYCES, in soil (Rus))
(SOIL, microbiol. Actinomyces (Rus))

KUZNETSOV, V.D.

A new species of lactic acid bacteria. Mikrobiologiia 28 no.3: 368-373 My-Je '59. (MIRA 13:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov, Moskva.

(LACTOBACILLUS
soae, new species (Rus)

KUZNETSOV, V.D.; LYAGINA, N.M.

Producer of a candicidin-type antibiotic belonging to the actinomyces group. Trudy Inst. microbiol. no.8:188-192 '60. (MIRA 14:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov, Moskva.

(ANTINOMYCETALES) (CANDICIDIN)

KUZNETSOV, V.D.; SOROKINA, Ye.I.; VIKHROVA, N.M.; KRYUCHKOVA, T.I.; KLEOPINA, G.V.; KHOKHLOV, A.S.

Producer of actinomycin belonging to the fluorescent group of actinomycetes. Trudy Inst. microbiol. no.8:193-201 '60. (MIRA 14:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov, Moskva.

(ACTINOMYCETALES) (ACTINOMYCIN)

KUZNETSOV, V.D.

Use of actinophage in the identification and directed study of some producers of polyene antibiotics. Antibiotiki 5 no.3:25-29 My-Je '60. (MIRA 14:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov.
(ACTINOMYCES) (STREPTOMYCES)
(BACTERIOPHAGE) (ANTIBIOTICS)

KUZNETSOV, V.D.

Conference on the classification of actinomycete producers of antibiotics. Antibiotiki 5 no.6:114-116 N-D '60. (MIRA 14:3)
(ACTINOMYCES)

KUZNETSOV, V.D.

Actinomycetes from various soils in the environs of Kiev and their antagonistic properties. Mikrobiol. zhur. 22 no. 1:47-53 '60. (MIRA 13:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov, Moskva.
(KIEV REGION--ACTINOMYCES)

KUZNETSOV, V.D.

Actinomycetes in some soils of the Pamirs and their antagonistic properties. Mikrobiologiia 29 no. 4:563-570 Jl-Ag '60.
(MIRA 13:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov (VNIIA), Moskva.
(PAMIRS--ACTINOMYCES)

KUZNETSOV, V.D.

Use of actinophages in controlled search for producers of heptaenic antibiotics. Dokl. AN SSSR 135 no.4:981-983 '60. (MIRA 13:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov. Predstavleno akademikom V.N.Shaposhnikovym.
(Bacteriophage) (Antibiotics)

KUZNETSOV, V.D.

Actinomyces in Red soils of Zelenyi Mys and their antagonistic properties. Antibiotiki 6 no.10:883-887 O '61; (MIRA 14:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov.
(ACTINOMYCES) (BATUM REGION--SOILS--MICROBIOLOGY)

KUZNETSOV, V.D.

Systematic position of some actinomycetes producing heptaene antibiotics. Antibiotiki 7 no.8:675-679 Ag '62. (MIRA 15:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov.
(ANTIBIOTICS) (ANTINOMYCES)

KUZNETSOV, V.D.

A new species of the genus Chainia. Mikrobiologiia 31 no.3:534-539 My-Je '62. (MIRA 15:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov.
(ARMENIA--ACTINOMYCETALES)

KUZNETSOV, V.D.; LYAGINA, N.N.; SOKOLOVA, Ye.I.; [illegible]

Some problems of storing actinomycetic and fungus cultures under laboratory conditions. Mikrobiologiia 31 no.4:731-737 Jl-Ag '62. (MIRA 18:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov.

KUZNETSOV, V.D.

Distribution of actinomycetes in the soils of Transcarpathia.
Mikrobiologiia 32 no.3:498-506 My-Je'63 (MIRA 17:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov, Moskva.

KUZNETSOV, V.D.

Distribution of actinomycetes in some soils of Armenia.
Mikrobiologiia 32 no.5:827-834 S-O'63 (MIRA 17:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov, Moskva.

OSTROUKHOV, A.A.; KUZNETSOV, V.D.

Rapid method of selecting active variants of penicillin producer with the aid of rH2 indicators. Antibiotiki 8 no.1: 33-35 Ja'63. (MIRA 16:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov.
(PENICILLIN) (OXIDATION-REDUCTION REACTION)

KUZNETSOV, V.D.

Isolation of an actinophage from liquid culture media for florimycin (viomycin) producing organisms. Antibiotiki 8 no.10:887-892 O '63. (MIRA 17:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov.

KUZNETSOV, V.D.; LYAGINA, N.M.

Preservation and variability of Actinomyces streptomycini strain IS-1 producing streptomycin. Antibiotiki 9 no.11:970-975 N '64.
(MIRA 18:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov, Moskva.

KALAKUTSKIY, L.V.; KUZNETSOV, V.D.

A new species of the genus Actinoplanes Couch: Actinoplanes armeniacus n. sp., and some characteristics of its spore formation. Mikrobiologiia 33 no.4:613-621 Jl-Ag '64. (MIRA 18:3)

1. Institut mikrobiologii AN SSSR i Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov Ministerstva zdravookhraneniya SSSR (VNNIIA).

KUZNETSOV, V.D.; FIVOVAROVA, E.V.

Methods of plating the freeze-dried spores of some actinomycetes, producers of antibiotics. Mikrobiologiia 34 no.1:176-179 Ja-F '65. (MIRA 18:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov.

KUZNETSOV, V.D.

Phagolysis of actinomycetes as one of the causes of disorders in the biosynthetic process of some antibiotics. Antibiotiki 10 no.8:689-693 Ag '65. (MIRA 18:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov, Moskva.

KUZNETSOV, V.D.

Classification of Actinomyces galbus. Antibiotiki 10 no.7: 595-598 Jl '65. (MIRA 18:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov, Moskva.

L 27127-66 EWT(1)/T UR

ACC NR: AP6017123 SOURCE CODE: UR/0297/65/010/008/0689/0693

AUTHOR: Kuznetsov, V. D. 32 B

ORG: All-Union Scientific Research Institute of Antibiotics, Moscow (Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov)

TITLE: Phagolysis of actinomycetes — one of the reasons for breakdown in the biosynthesis of certain antibiotics

SOURCE: Antibiotiki, v. 10, no. 8, 1965, 689-693

TOPIC TAGS: antibiotic, biosynthesis, fermentation

ABSTRACT: A study was carried out on samples of low-active culture fluids — producers of florimycin, novobiocin, and cycloserine, in order to detect actinophages in them. In all cases, when actinophages were isolated from culture fluids, the method of indicator cultures was used, for which a set of actinomycetes species close to each producer was used. The florimycin producer — Act. floridae - 194 — is a variant, which is stable toward certain actinophages obtained in the laboratory of the All-Union Scientific Research Institute of Antibiotics. The low-active cultural fluid of the florimycin producer contained a small number of mycelia and was devoid of foreign microflora. Subsequent experiments showed that the number of phage particles in culture fluid of the florimycin producer filtered through a

Card 1/2 UDC: 615.779.931-012.002.234: 576.852.1.097.35:576.858.97

L 27127-66

ACC NR: AP6017123 O

Seitz filter was reduced to approximately 1/10 compared to the number of phage particles contained in liquid freed of mycelia by centrifuging. From the zone of lysis of the indicator culture, an agar block containing the actinophage was cut out, and then placed in a test tube containing meat-peptone broth, where the florimycin producer strain No 194 was used as a culture-host. The results of the study showed that in the biosynthesis of florimycin, novobiocin, and cycloserine under laboratory conditions and on the experimental installation of the Institute, one of the reasons for unsuccessful fermentations is phagolysis of culture producers. These cultures are in all probability lysogenic, and from time to time spontaneously, due to as yet undiscovered reasons, they can undergo phagolysis under the effect of their own phage. However, it must be noted that the presence of temperate phage at low titers in defective culture fluid is not always a reason for halting fermentation. According to the author's observations, vigorous phagolysis of producers occurs more generally at close of winter and spring. Orig. art. has: 7 figures and 1 table. [JPRS]

SUB CODE: 06 / SUBM DATE: 03Nov64 / ORIG REF: 006

Card 2/2

KUZNETSOV, V.D.; SEMENOV, S.M.

Mutability of framycin (neomycin)-producing Actinomyces fradiae No.129 during their storage under laboratory conditions. Antibiotiki 10 no.9:788-793 S '65. (MIRA 18:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov, Moskva.

PORODNIKOV, P.F.; KUZNETSOV, V.D.

Fabric shrinkage after soaking. Tekst. prom. 25 no.12:68-69 D '65. (MIRA 19:1)

1. Direktor Arzhenskoy sukonnoy fabriki (for Porodnikov).
2. Glavnyy inzh. Arzhenskoy sukonnoy fabriki (for Kuznetsov).