ORGANIZATION LOCAL RADIO WAVES WITH A WAVELENGTH \( \lambda = 160 \text{m} \) AND FREQUENCY WITH 1,600 \( \div \) 1835 \( \text{KHz} \) MIDDLE-WAVE DIAMETER

T. A. Matqurbanov

Urgench branch of Tashkent University of information technologies named after Muhammad al-Khwarizmi, Toshkent.2013@mail.ru

Follow this and additional works at: https://uzjournals.edu.uz/capmse

Recommended Citation
Matqurbanov, T. A. (2019) "ORGANIZATION LOCAL RADIO WAVES WITH A WAVELENGTH \( \lambda = 160 \text{m} \) AND FREQUENCY WITH 1,600 \( \div \) 1835 \( \text{KHz} \) MIDDLE-WAVE DIAMETER," Central Asian Problems of Modern Science and Education: Vol. 4 : Iss. 2 , Article 62. Available at: https://uzjournals.edu.uz/capmse/vol4/iss2/62

This Article is brought to you for free and open access by 2030 Uzbekistan Research Online. It has been accepted for inclusion in Central Asian Problems of Modern Science and Education by an authorized editor of 2030 Uzbekistan Research Online. For more information, please contact brownman91@mail.ru.
Matqurbanov: ORGANIZATION LOCAL RADIO WAVES WITH A WAVELENGTH $\lambda=160M$ AND FREQUENCY WITH $1,600 \div 1835$ KHZ MIDDLE-WAVE DIAMETER

Технологический журнал "Химическая технология контроля и управления", Ташкент, 2017, № 5. –С 71-75.


UDK 654.195.62

ORGANIZATION LOCAL RADIO WAVES WITH A WAVELENGTH $\lambda=160M$ AND FREQUENCY WITH $1,600 \div 1835$ KHZ MIDDLE-WAVE DIAMETER

To’lqin Matqurbanov Alimboyevich
Assistant, Urgench branch of Tashkent University of information technologies
named after Muhammad al-Khwarizmi
E-mail: Toshkent.2013@mail.ru

Аннотация. Маколада оптик толали алоқа линиялари базасида ахборот тизимларининг дунёда ва Ўзбекистондаги ривожланиш ҳолати ва истиқболлари баён килинган. Шунингдек маколада маъдуга оид адабийотлар таҳлил килинган бўлиб, оптик толали алоқа линияларининг дунёда ва Ўзбекистондаги ҳолати келтирилган. Маколанинг ёртиши методикаси сифатида ривожланган мамлакатлардаги оптик толали алоқа линияларининг ишлатилишдаги ютукларнинг шархи ва таҳлил кўриб чиқилган.

Калит сузлар: Оптик тола, спектр, ОТАЛ, ПОФ, ДВДМ, ПММА, IP-ТВ, ДВД, ТСН (ТАШКЕНТ CITY TELEPHONE NETWORK), интернет, телекоммуникация.
Аннотация. В данной работе авторами излагаются состояние и перспективы развития информационных систем на базе ВОЛС в мире и в Узбекистане. А также в статье проанализированы литературы о тематике и приведены состояние волоконно-оптических линий связи в мире и в Узбекистане. В качестве методике изложения рассмотрены обзор и анализ достижения волоконно-оптических линий связи в развитых странах мира.

Ключевые слова: Оптическое волокно, спектр, ВОЛС, POF, DWDM, РММА, IP-TВ, HDTV, ТГТС (ТАШКЕНТСКАЯ ГОРОДСКАЯ ТЕЛЕФОННАЯ СЕТЬ), интернет, телекоммуникация.

Abstract: Abstract deals with use detecting and correcting errors in organization waves and radio communication lines, providing quality and reliable connection between central radio stations and their baseband units.

Keywords: Channel, frequency, radio, aerial, waves, magnification, system, connection.

Introduction. Before setting up medium radius ranges local radio lines with a wavelength \( l = 160 \text{m} \) and frequency with \( 1,600 \div 1835 \) kHz, we first need to study radio systems in this range.

Short-to medium-wave electromagnetic radiation has a role and function in the radio. Using this feeder wave, we can create about 3000-2000 radio stations in long distances.

This characteristic of the short and medium wave is caused by the ionosphere waves of the waves and the properties of the barrier of the earth's globe. In the early days of the last century, in the radio communication, high-frequency radio equipment was not developed. There are also shortcomings in the middle and short circuits, one of which is the size of the antenna feeder devices. Therefore, the modeling of antenna feeder devices from the middle and the periphery is a process that requires much labor. At the stages of development of information technologies, modeling programs
are enough. Antenna feeder modeling software for broadcasting devices is now a MMANA program.

**Literature review.** Having a large library of ready-made antenna files allows not only to find a suitable antenna, but also to check for con. Specific examples of the level of development of the program. Also given, though not directly related to MMANA, but desirable for confident work and proper understanding results obtained, the basics of computer simulation antennas.

**Research methodology.** Central station radio waves of mid-wave range include “Transvir type” IC-107, operating at frequencies of 1.500mHz -30mHz on range of shortwave radios. For radio station (radio transmitting device), central station, established on basis of following scheme, should be centered in center or distribute radio waves in one direction.

![Radio network structure operating in mid-wave diapason.](image)

**Antenna Types**

You can use “delta loop” antenna for central station. Delta loop is called Delta in following sentences. Delta is a type of antenna or an “antenna” based antenna type. The word "Delta" is derived from Greek "D". A principal closed loop consists of three base points and the perimeter is in the form of a triangle \( L_n = 1 \), which has equal wavelengths in most cases. This antenna was tested in the U.S.A in 1925.

Here is a brief overview of Delta antenna specifications.

1) Delta-based antennas. Plate is an enlarged variant of vibrator type.
2) Magnification of antenna increases as a result of magnification of parameters of plate vibrator.

3) Antennas are classified as symmetrical antennas and cannot be grounded, but at low frequencies, antenna is connected to ground with smaller frequencies less than wavelength.

4) Input resistance of Delta antenna is approximately $Z = 100 \div 400 \text{ Ohm}$. If height of the antenna is higher, input resistance of antenna may be reduced to $Z = 80 \div 60 \text{ ohm}$. In this case, antenna can be connected without coaxial cables with $Z = 50 \div 75 \text{ Ohm}$.

**Analysis and results.** Delta Loop Antenna Design.

Before installing the antenna, the soil type must be examined. We use the software built using the Delta Loop calculator to calculate the antenna perimeters. In this program, a 75 $\Omega$ coaxial transformation is used between the antenna and the feeder when the antenna uses a 50-mm feeder (antenna and its connecting device).

![Diagram of Delta Loop Antenna](image)

Picture 2. An image of the delta antenna in the Delta Loop calculator.

Entering antenna parameters in MMANA program and calculate antenna's electrical parameters.

![Geometry window of the Delta Loop antenna](image1)

Picture 4. The image of the Delta Loop antenna in the MMANA program.

![Image of the Delta Loop antenna](image2)

Picture 5. Image of the Delta Loop antenna in the MMANA Vicisleniya pane.

![Image of the Delta Loop antenna in MMANA Vicisleniya pane](image3)

Picture 6. The schema of the Delta Loop antenna in the MMAN
Picture 7. Vertical and horizontal wave propagation in the schema window of the Delta Loop antenna in MMAN

![Image of MMAN schema window]

Picture 8. 3D view of the Delta Loop antenna in the MMANA schema window.

![Image of 3D Delta Loop antenna]


![Image of G-Simon Adjustable Inductive Roll Parameters]

Picture 10. Delta Loop Antenna Adapter Parameters.

*T Shaped Aerials*

The location of the radio station location of the subscriber and the constructive report of the antenna Subscriber stations are planned to be stationary (indoors) on the project, but stations can be installed in the vehicle body. Radio stations can be radio
transmitters with type IC-107 or short-wave transmitters. The experiment shows that T-shaped G-symmetrical antennas can provide good results in a 160-meter diameter wavelength with its simplicity of construction, electrical parameters. For T-cells, a T-Antenna is available. T shaped antenna was tested by American radiocrats Loven Windom in the 30s of the last century and achieved good results. That's why the name given to the antenna was named "WINDOM". In the 40s and 50s of the last century, it was called "American". One of the good things about the "T" antenna We can use the antenna for different antennas on small antennas. In these cases, the feeder can be connected to the antenna by a wire (in the classic version), the access point of the feeder determines the input resistance of the antenna. By changing the port, we can adjust the power of the transmitter connected to the antenna. We will consider the construction of the "T" shaped antenna. The design of the "T" shaped antenna is not so difficult. The length of the antenna is initially L, then the distance to the point of the feeder connected to the antenna is determined by X0. The length of the antenna is the antenna length L. below measures Lk The length of the antenna signal.

\[ L = 0.95 \times \frac{\lambda}{2} = 0.475 \times \lambda \]

Here:

L - Antenna cable length (m)

\( \lambda \) - Wavelength of Propositional Frequency (m)

Antenna's feeder port is determined by experiment. The probable connection point is determined by the following figure.

\[ X_0 = 0.17 \times l \]

The wavelength range ranges from 160 to 1860 kHz for radio couples ranging from 160 m to about 1960 kHz.

Radio frequency spectators are allowed to experiment with the frequency range 1840-1960.
\( l (m) = 300 / (F) \) (3)

we calculate the frequency wave length for 1.840kHz.

\( l (m) = 300 / 1.840 \text{ kHz} = 163.04 \text{ m} \)

Antenna length \( L \)

\( L = 0.475 \times 1 = 163 \times 0.475 \approx 80 \text{ m} \)

The distance to the antenna point of the feeder

\( X_0 = 0.17 \times 1 = 0.17 \times 80 = 13.1\mu 13 \text{ m} \)

The resulting "T" shaped antenna looks like this.

Figure 11. Designed T-shaped antenna's constructive look.

**Conclusion/Recommendations**

In summary, I can say that these studies and information can be used and taught as experimental training on "Radiolocation Systems" which is in "Telecommunication Technologies". Also bands used in radio systems can be used in mobile and television standards.

**References**

[1] Computer simulation of antennas. All about the MMANA program. - M.
.: IP RadioSoft, Magazine "Radio". 2002 - 80 pp., Ill. ISBN 5_93037_092_3


