

ANTENTOP

ANTENTOP 01 2015 # 019

ANTENTOP is **FREE** e-magazine devoted to **ANTENna's**
1-2015 Theory,
Operation, and
Practice

Edited by hams for hams

In the Issue:
Antennas Theory!

**Antenna for 50 and 70- MHz
Band by ES4UY (also UY5ON)**

Thanks to our authors:

Practical design of HF Antennas!

Antenna Transformers!

**Practical design of 50 and 70- MHz
Antennas!**

Regenerative Receivers!



Prof. Natalia K.Nikolova

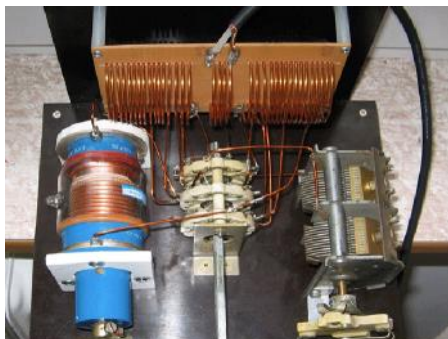
**Nick Kudryavchenko,
UR0GT**

**Aleksandr Grachev,
UA6AGW**

Vasily Perov, DL1BA

And others.....

**DL1BA Symmetrical Antenna
Tuner**



EDITORIAL:

Well, my friends, new ANTENTOP – 01 - 2015 come in! ANTENTOP is just authors' opinions in the world of amateur radio. A little note, I am not native English, so, of course, there are some sentence and grammatical mistakes there... Please, be indulgent!

ANTENTOP 01 –2015 contains antenna articles, description of antenna RX and TX transformers, Regenerative Receivers. Hope it will be interesting for you. Our pages are opened for all amateurs, so, you are welcomed always, both as a reader as a writer.



Copyright: Here at ANTENTOP we just wanted to follow traditions of **FREE** flow of information in our great radio hobby around the world. **A whole issue** of ANTENTOP may be photocopied, printed, pasted onto websites. We don't want to control this process. It comes from all of us, and thus it belongs to all of us. This doesn't mean that there are no copyrights.

There is! *Any work is copyrighted by the author. All rights to a particular work are reserved by the author.*

73! Igor Grigorov, VA3ZNW

ex: RK3ZK, UA3-117-386,

UA3ZNW, UA3ZNW/UA1N,
UZ3ZK

op: UK3ZAM, UK5LAP, EN1NWB,
EN5QRP, EN100GM

Contact us: Just email me
igor.grigorov@gmail.com

NB: Please, use only plain text and mark email subject as: **igor_ant**. I receive lots spam, so, I delete **ALL** unknown me messages **without** reading.

ANTENTOP is **FREE** e-magazine, available **FREE** at <http://www.antentop.org/>

Welcome to ANTENTOP, FREE e - magazine!

ANTENTOP is **FREE e- magazine**, made in **PDF**, devoted to Antennas and Amateur Radio. Everyone may share his experience with others hams on the pages. Your opinions and articles are published without any changes, as I know, every your word has the mean.

Every issue of ANTENTOP is going to have 100 pages and this one will be paste in whole on the site. I do not know what a term for one issue would be taken, may be 12 month or so. A whole issue of ANTENTOP holds nearly 10- 30 MB.

A little note, I am not native English, so, of course, there are some sentence and grammatical mistakes there... Please, be indulgent!

Publishing: If you have something for share with your friends, and if you want to do it **FREE**, just send me an email. Also, if you want to offer for publishing any stuff from your website, you are welcome!

Your opinion is important for me, so, contact if you want to say something!

Copyright Note:

Dear friends, please, note, I respect Copyright. Always, when I want to use some stuff for ANTENTOP, I ask owners about it. But... sometimes my efforts have no success. I have some very interesting stuff from closed websites however their owners keep silence... as well as I have no response on some my emails from some owners.

I have a big collection of pictures. I have got the pictures and stuff in different ways, from **FREE websites**, from commercial CDs, intended for **FREE using**, and so on... I use to the pictures (and seldom, some stuff from free and closed websites) in ANTENTOP. **If the owners of the Copyright stuff have concern**, please, contact with me, I immediately remove any Copyright stuff, or, if it is necessary, all needed references will be made there.

Business Advertising: ANTENTOP is not a commercial magazine. Authors and I (Igor Grigorov, the editor of the magazine) do not get any profit from any issue. But of course, I do not mention from commercial ads in ANTENTOP. It allows me to do the magazine in most great way, allows me to pay some money for authors to compensate their hard work.

So, if you want paste a commercial advertisement in ANTENTOP, please contact me.

Book Advertising: I believe that **Book Advertising** is a noncommercial advertisement. So, Book Advertising is **FREE** at ANTENTOP. Contact with me for details.

Email: igor.grigorov@gmail.com
subject: [igor_ant](#)

NB: Please, use only plain text and mark email subject as: [igor_ant](#). I receive lots spam and viruses, so, I delete **ALL unknown me messages** without reading.

73! **Igor Grigorov**, VA3ZNW
ex: UA3-117-386, UA3ZNW, UA3ZNW/UA1N, UZ3ZK, RK3ZK
op: UK3ZAM, UK5LAP, EN1NWB, EN5QRP, EN100GM

<http://www.antentop.org/>

Editorial

Table of Contents

Antenna Theory

Page

Linear Array Theory- Part III : by: Prof. Natalia K. Nikolov

- 1 Dear friends, I would like to give to you an interesting and reliable antenna theory. Hours searching in the web gave me lots theoretical information about antennas. Really, at first I did not know what information chose for ANTENTOP.

Now I want to present to you one more very interesting Lecture - it is LECTURE 17: Linear Array Theory- Part III : N-element linear array with uniform spacing and non-uniform amplitude: binomial array; Dolph-Tschebyscheff array; directivity and design considerations..... 5- 26

HF- Antenna Practice

Two Slopers for All Traditional Five HF-Bands: By Vladimir Fursenko, UA6CA

- 2 It is possible at one mast install two slopers that cover all traditional five HF-Bands- 80,- 40,- 40,- 15 and 10- meter..... 27

Antenna for 80-, 40-, 20-, 17-, 15-, 12-, and 10- meter HF Band: By Vladimir Fursenko, UA6CA

- 3 The two- level antenna works at 80-, 40-, 20-, 17-, 15-, 12- and 10- meter Bands. Upper level works on 80-, 40-, 20-, 15- and 10- meter Bands. Lower level works on 17- and 12- meter Bands. ... 28- 29

Bidirectional Vertical Antenna for the 20- meter Band: By: Nikolay Kudryavchenko, UR0GT

- 4 One Ground Plane allows get one directional switchable DD. For this purpose to the GP a two wires should be added. With help an RF Relay (or just with help of manually installed jumper) the wires turn on to Director and Reflector..... 30- 31

L-Vertical Antenna for Nearest Objects for The 40- and 20- meter Bands: By: Nikolay Kudryavchenko, UR0GT

- 5 One L-Vertical Antenna may works at the two amateur Bands- 40- and 20- meters. The main feature of the antenna is that it may be located at nearest conductive objects- for example the antenna may be placed near water drain. Antenna may be placed at a wall of a house. Inside a house there are always a lot of conductive objects- for example electrical main, refrigerator, metal tubes of house ventilation system and so on..... 32- 34



Table of Contents

Page

6	<p>Universal Beverage Antenna: by: Igor Grigorov, va3znw, Richmond Hill, Canada</p> <p>Beverage Antennas are widely used at commercial and military radio communication. In commercial communication Beverage Antenna as usual is used as a receiving antenna. However, in military communication Beverage Antenna is used for both purposes- for receiving and transmitting applications. Transmitting/receiving Beverage Antenna was used in DX- Pediton EK1NWB on to Kizhy island where the antenna (against skepticism of some persons) illuminated its good job. So when again in Toronto I have changed my QTH and the QTH allowed me install Beverage Antenna, I did not hesitated...</p>	35- 41
7	<p>Windom Compendium from RZ9CJ: By: Sergey Popov, RZ9CJ, Ekaterinburg, Russia</p> <p>Just description of five Windom Antenas....</p>	42
8	<p>Windom UR0GT: by: By: Nikolay Kudryavchenko, UR0GT</p> <p>Windom is one of the oldest and reliable antennas that used in ham radio. There are lots modifications of Windom Antenna (or in other words Off Center Dipole Antenna). One of such modification was optimized by UR0GT. The antenna was optimized for 40, 20 and 10- meter bands. ..</p>	43
9	<p>Two Vertical Antennas for 20-, 15- and 10- meter Bands: By: Nikolay Kudryavchenko, UR0GT</p> <p>Below described two vertical antennas that work without any ATU at the 20-, 15 and 10- meter Bands. The antennas easy to made and easy to tune to the bands.....</p>	44- 49
10	<p>R3PIN Experimenters with UA6AGW Antenna By: Aleksandr Grachev, UA6AGW Credit Line: CQ-QRP # 48 (Autumn 2014), pp.: 19- 22.</p> <p>There are below described experimenters with UA6AGW Antenna made by Sergey Tetuyhin, R3PIN. Sergey would like create an UA6AGW Antenna for 2- meter Band. He did not have schematic of the antenna for 2- meter Band. He made two antennas that he believed would work at the 2- meter Band. However his attempt was not successful. But Sergey during the experimenters found some unusual sides at UA6AGW Antenna.</p>	50- 52



Table of Contents

	Page
<p>Dipole Antenna for 40- and 20- meter Bands: By: Vasily Perov, DL1BA (ex UK8BA)Credit Line: Forum from: www.cqham.ru</p> <p>11</p> <p>Because I have no lots space at my backyard for antenna installation I like do experiments with shortened antennas. Below described one of my experimental shortened dipole antenna for 40- and 20- meter Bands. It takes for me only 1 and half hour for installation and tuning of the antenna. After that the dipole antenna was tested at CQ WW Contest (2015). I made 300 QSOs using 100-Wtts going into the antenna....</p>	<p>53- 55</p>
<p>Modified Dipole Antenna DL1BA for 40- and 20- meter Bands: By: Igor Vakhreev, RW4HFN</p> <p>12</p> <p>In my opinion the explanation how the DL1BA Antenna (Antentop 01- 2015, pp: 53-55, Dipole Antenna for 40- and 20- meter Bands) is working at the 20- meter Band is very simple. Parts of the antenna- there are long wire (5.6-meter length) before inductor, inductor and short wire (1.5- meter length) after inductor - make 1.5- lambda dipole at the 20- meter Band.....</p>	<p>56- 57</p>
<p>Modified DL1BA Dipole Antenna for 40- and 20- meter Bands with additional 10- or 15- meter Band: By: Igor Vakhreev, RW4HFN</p> <p>13</p> <p>DL1BA Antenna (Antentop 01- 2015, pp: 53-55, Dipole Antenna for 40- and 20- meter Bands) may be modified for working at additional 10- or 15-meter Band.....</p>	<p>58</p>
<p>Modified DL1BA Dipole Antenna for 40-, 20-, 15-, and 10- meter Bands: By: Igor Vakhreev, RW4HFN</p> <p>14</p> <p>DL1BA Antenna (Antentop 01- 2015, pp: 53-55, Dipole Antenna for 40- and 20- meter Bands) may be modified for working at additional 10- and 15-meter Bands.....</p>	<p>59</p>
<p>Antenna for 80-, 40-, and 15- meter Bands: By: Vladas Zhalnerauskas, UP2NV</p> <p>15</p> <p>W3DZZ Antenna is widely used among radio amateurs. The antenna shows the efficiency at several bands (as usual from 3 to 5) at minimal stuff to do it. The described below antenna is a modification of the W3DZZ Antenna. The antenna could work at 80- 40- and 15- meter Bands.</p>	<p>60</p>



Table of Contents

Page

HF- Antenna Practice

Antenna for 50 and 70- MHz Band: By: Alex Karakaptan, ES4UY, UY5ON

16	<p>The antenna was designed several years ago, when I got Estonian call sign ES4UY. With the call I able use 50 and 70- MHz bands from Estonia. Need to say that I was in a very rare square- K049CJ. So I need an antenna for those bands. Restricted place could not allow me to create something serious.</p>	61-62
-----------	---	--------------

HF ATU

Symmetrical ATU: By: Vasily Perov, DL1BA (ex UK8BA)

17	<p>Prototype of the tuner was made by VK5RG. The tuner was found by me at "Das DARC Antennenbuch". However at the book there was given only brief description of the unit. The tuner takes my attention and by trial-and-error method I found the design (data for Inductors and Capacitors) of the tuner.</p>	63- 64
-----------	---	---------------

VHF ANTENNAS

Three Element Yagi Antenna for 145- MHz with Square Reflector: By: Yuriy Skutelis, RN3DEK

18	<p>The antenna provides good F/B ratio. Antenna has input impedance 50- Ohm that allows fed the antenna directly through 50- Ohm coaxial cable. It was reached by special form of the reflector. ...</p>	65- 66
-----------	--	---------------

Three Element Yagi Antenna for 145- MHz with Rectangle Reflector: By: Yuriy Skutelis, RN3DEK

19	<p>he antenna has F/B ratio at least 29 dB. It was reached by special form of the reflector.</p>	67- 68
-----------	---	---------------

Four Element Antenna for Stack Design for 145- MHz Band By: Nikolay Kudryavchenko, UR0GT

20	<p>The four element YAGI is designed for installing in Four Element Stack Antenna System. The antennas not critical to nearest objects. Four such antennas are installed at corners of a quad....</p>	69- 70
-----------	---	---------------

Table of Contents

Page

UHF ANTENNAS

21	Vertical Antenna 5/8 Lambda for 70- cm Band: By: Antonhax: Credit Line: Forum from: www.cqham.ru	71- 72
-----------	---	---------------

At first the antenna was modeled by copper wire. Then the antenna was made on the base of bicycle wheel spokes.

22	Broadband Vertical for 430- MHz Band: By: Nikolay Kudryavchenko, UR0GT	73- 74
-----------	---	---------------

Broadband Vertical Collinear Vertical antenna designed for 430- MHz Band. The antenna has Diagram Directivity with low-altitude maxima to the ground. Antenna has passband near 70- MHz at SWR 1.5:1.0.

TV ANTENNAS

23	TV Antennas for Distance Receiving By: Leonid Pozdnyakov Credit Line: Radio # 10, 1953, pp.: 53- 54.	75- 77
-----------	---	---------------

At the original articles published at Radio # 10, 1953, there were described several antennas for distance receiving TV broadcasting stations. Below it is described one of those antennas- it is a Rhombic Antenna. Rhombic Antenna is easy to make and at the same time has perfect parameters...

RECEIVING ANTENNAS

24	UB5UG Horizontal Receiving Antenna: By: Yuri Medinets, UB5UG	78- 79
-----------	---	---------------

At modern city to use a separate receiving antenna may be only one variant to be on the Air. Interferences from nearest electronics devices could force it. Below here it is described receiving antenna from far 70-s that may solve the hard modern situation.....

25	Insulation RX Transformer: By: Igor Grigorov, va3znw	80- 82
-----------	---	---------------

At my shack I have used a Coaxial Antenna Switch Protax CSR- 5G to change devices switched to my antenna. The switch is very convenient for amateur operation in the Air. I can easy switch antenna from one transceiver (ICOM- 718) to another one (K1) or turn antenna to general coverage receiver (Hallicrafters S-85). I use the receiver to check propagation in the Air and just to catch some interesting HF- stations....

Table of Contents

Page

TUBE RECEIVERS

Simple Tube DC SSB Receiver: By R3KCR, Voronezh, Russia

26

It is simple experimental receiver that was made on two tubes- twin triodes. The receiver was tuned to 80- meter amateur band.

83- 84

HF Receiver for Beginner Ham: By: Viktor Lomanovich, UA3DH

27

The HF Tube Regenerative Receiver is a classical design of the Tube Era. Somebody gave me magazine with the article at the 70s. I did the receiver and got very good result. I have received lots of amateur stations with the receiver. Then the receiver was remade by me in general coverage HF- Receiver. I could receive with great quality forbidden BBC, Voice of America lots broadcasting stations and easy found at those times "Numbers Stations." ...

85- 87

BOOKS

Direct Conversation Technique for Radio Amateurs. Vladimir Polyakov, RA3AAE, Ph. D in Technical Science

28

Light description of the book and link to download....

88

Underground and Ground Antennas: Georgiy A. Lavrov, Aleksey S. Knyazev Publishing House: Sovetskoe Radio, Moscow, 1965

29

Light description of the book and link to download....

89

Jones Antenna Handbook

30

Light description of the book and link to download....

90

Field Antenna Handbook

31

Light description of the book and link to download....

91

Construction of a Rhombic Receiving Antenna

32

Light description of the book and link to download....

92

Antennas and Antenna Systems

33

Light description of the book and link to download....

93

Antennas and Radio Propagation

34

Light description of the book and link to download....

94

Table of Contents

Page

Design Handbook for High Frequency Radio Communications Systems

35

Light description of the book and link to download....

95

RF Transformers

Broadband Transformer 50/200 Ohm: By: Sergey Popov, RZ9CJ, Ekaterinburg, Russia

36

Below I describe a simple way to make broadband transformer 50/200 Ohm with isolated windings. (Theoretically the transformer is for 50/140- Ohm. However it works fine for most common using 50/200 Ohm.).....

96- 97

Two Broadband Symmetrical Transformers for HF and VHF Bands: By: Alex Karakaptan, UY5ON, ES4UY, Kharkov, Ukraine

37

For operation in the Air at all HF- Bands I use to antenna Delta. The antenna is fed by 300- Ohm Ladder Line. To match the antenna with my transceiver I use to ATU MFJ-962D. The ATU has symmetrical transformer at output. The transformer could provide good symmetrical operation ... but with antennas that has low reactance. My Delta has significant reactance through amateur's bands. So the concept is not for me....

98

Experimenters

Experimenters with Microwave Oven: by Igor Grigorov, va3znw

38

Almost everyone has at home a Microwave Oven. It is possible make some experimenters with it. Most interesting and visual experiment is Experiment with Bulbs. We may find how microwaves effect to incandescent (filament) and CFL bulbs.....

99- 100

