

ANTENTOP 02 2004 #006

ANTENTOP is FREE e-magazine devoted to ANTENnas Theory,

2-2004

In the Issue: Antennas Theory!

Practical design of HF Antennas!

Practical design of UHF Antennas!

Interferences!

And More

RV3DA Antenna



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900-MHz Antenna



EDITORIAL:

Well, my friends, new ANTENTOP – 02 -2006 come in! ANTENTOP is just authors' opinions in the world of amateur radio. I do not correct and re-edit yours articles, the articles are printed "as are". A little note, I am not a native English, so, of course, there are some sentence and grammatical mistakes there... Please, be indulgent!

ANTENTOP 02 –2004 contains antenna articles, and several historical articles. Hope, it will be interesting for you.

Our pages are opened for all amateurs, so, you are welcome always, both as a reader as a writer.

73! Igor Grigorov, RK3ZK

ex: UA3-117-386, UA3ZNW, UA3ZNW/UA1N, UZ3ZK op: UK3ZAM, UK5LAP, EN1NWB, EN5QRP, EN100GM

Operation, and Practice Edited by hams for hams

> Thanks to our authors: Prof. Natalia K.Nikolova Igor Grigor'ev, RV3DA S. Ershov, UW3TU Petr Gritcay, US1REO Vitaly Brousnikin And others.....



Contact us: Just email me or drop a letter.

Mailing address:

Box 68, 308015, Belgorod, Russia Email: <u>antentop@mail.ru</u>

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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. Preview's files will be removed in this case. I do not know what a term for one issue will need, may be 3-4 month or so. As I have counted, a whole issue of ANTENTOP will hold nearly 10 MB.

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

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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!

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

I do not know, why the owners do not response me. Are they still alive? Do their companys are a bankrupt? Or do they move anywhere? Where they are in the end?

Business Advertising: ANTENTOP is not a commercial magazine. Authors and I (Igor Grigorov, the editor of the magazine) do not get any profit from the issue. But off 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. I have lots interesting stuff in Russian, and owners of the stuff agree to publish the stuff in ANTENTOP... but I have no enough time to translate the interesting stuff in English, however I may pay money to translators,

Mailing address: Box 68, 308015, Belgorod, Russia Email: <u>antentop@mail.ru</u> subject: **igor_ant** and, they will do this work, and we will see lots interesting articles there.

So, if you want to put a commercial advertisement in ANTENTOP, please contact with me. A commercial advertisement will do ANTENTOP even greater interesting and various! I hope, readers do not mention against such commercial ads.

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73! Igor Grigorov, RK3ZK

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op: UK3ZAM, UK5LAP, EN1NWB, EN5QRP, EN100GM

http://www.antentop.bel.ru/mirror: www.antentop.boom.ru Editorial

Antenna Theory

Introduction into the Theory of Radiation: by Prof. Natalia K.Nikolova

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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 to chose for ANTENTOP.

Now I want to present to you one more very interesting Lecture - it is Introduction into the Theory of Radiation. I believe, you cannot find such info anywhere for free! Very interesting and very useful info for every ham, for every radio- engineer.

HF- Antenna Practice

Field Universal HF Antenna RV3DA: by Igor Grigor'ev, RV3DA

Russia summer traditionally is the season for radio expeditions. So, the question about a field antenna stands before hundreds radio amateurs. Certainly, it is impossible to give one answer to this question. A design of an antenna for fields depends on many factors. There are frequencies bands used by radio expedition, local factors for antenna installation, time and money and so on. Igor, RV3DA, has developed universal wire antenna. This one with ATU works well on all amateurs short-wave ranges, including WARC. factors for antenna installation, time and so on. Igor, RV3DA, has developed universal used by radio expedition, local factors for antenna. This one with ATU works well on all amateurs short-wave maney and so on. Igor, RV3DA, has developed universal wire antenna. This one with ATU works well on all amateurs and money and so on. Igor, RV3DA, has developed universal wire antenna. This one with ATU works well on all amateurs short-wave ranges, including WARC.

Shunt Vertical Universal HF Antenna: by Igor Grigorov, RK3ZK

Field universal antenna RV3DA (see pp.:24- 35 of ANTENTOP- 02- 2004) works well even at a bad grounding. To hammer into the ground a metal rod in 1 meter length is enough for the grounding. Installation of the antenna takes a little time, it is another its advantage.However, if there is an opportunity to provide a good ground, and there is some free time to spend of for installation of an antenna, it is possible to use a Shunt Vertical Universal HF Antenna

Multirange Trap Antennas: by Igor Grigorov, RK3ZK

Recently multirange trap antennas are widespread among radioamateurs. As matter of fact, the type of antennas was invented in the USA by H. K. Morgan, US patent # 2229856, 1938 (by reference [1]). Probably the first article about a trap antenna was published in reference [2] at 1940. So, what is the antenna and how is it work? Let's see it on the example of a ham vertical trap antenna in order to simplify a problem. Figure 1 shows us a schematic of such antenna.

Log Periodic Antenna for 21, 24, 27, 28 and 30- MHz: by S. Ershov, UW3TU

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The Log Periodic Antenna works at 21, 24, 27, 28 and 30 - MHz. As all antennas of the type, the LPDA is easy tuned and works with a high efficiency. The antenna contains additional directors for 21 and 28- MHz and reflector for 21- MHz.

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Page Dipole Nadenenko by Igor Grigorov, RK3ZK Soviet radio amateurs well know the broadband dipole named in 6 64-67 Russia "dipole Nadednenko." The antenna is widely used at serve radio centers of Russia. Russian radio amateurs also are used the dipole. Below we take up a design of the antenna. VHF Antenna Practice Forgotten Antenna : by Igor Grigorov, RK3ZK Some of former USSR's radio amateurs still remember the "TV **68** spherical antenna". Earlier, at 60- 70s the antenna was rather 7 widely used for reception of TV. What is the "TV spherical antenna"? Antenna for 900 MHz: by Petr Gritcay, US1REO I have got a radio telephone DAEWOO DWP-5000 working in a

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range 900-MHz at the radio market in Kiev . I checked up the phone with its antennas. I could reach only 300- 350 meters when the phone saw the radio base. I need 2 kms communication range. I decided to increase the communication range of my radio phone by using an effective antenna.

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Feeders

Losses of RF Power when Feeder works at SWR mode: by Igor Grigorov, RK3ZK

If a feeder has a characteristic impedance differ compare to the 9 72 load a part of RF power going from the transmitter in the feeder is reflected from the load back to the transmitter. In this case the load uses a part of RF power of the transmitter. Table 1 shows the losses of RF power when a feeder has SWR.

Interferences

An absorbing Filter: by Igor Grigorov, RK3ZK

At ANTENTOP - 2, 2003 it was described a trap filter on main wires. However, the filter cannot be used at a high power or at super- broad bands transmitters. One reason is that it is impossible to retune a trap at a wide frequency range, other reason is the trap filter does reflection of the high-frequency energy back. So, wire to the filter can radiate also the high- frequency energy goes to transmitter and does additional interferences. So, in some case a trap filter can do more trouble the use.

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Free Radio e- BOOKS in the Internet

Crystal Sets to Sideband: Contents and Path to Free e- book

11 Dear friends, I have read the book with great interest. The book really captivates and I cannot tear myself away the book. The book contains 16 very interesting chapters, and every chapter says us a separately story about radio. I can strongly recommend to you have read this book. Below you can see the Contents of the book and path to load this one.

Antennas for Radio Amateurs: Contents and Path to Free e- book

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If you can read in Russian you can download a free e- book "Antennas for Radio Amateurs" by Igor Grigorov, RK3ZK. The book is e- variant of a paper book with the same title. Paper book contains 256 pages and was issued in 1998 in Russia. One fragment of the book was translated in the English and was published at ANTENTOP- 1, 2003. Other fragments of the book also going to translated in the English. Below you can see the Contents of the book and path to load the Russian variant.

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History.

Russian Transceiver EFIR: by Igor Grigorov, RK3ZK

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Transceiver Efir was produced since the end of 70s of the 20 Century. Functional chart of the transceiver was the same as UW3D1- 2 transceiver had. However, Efir was made all of semiconductors, it did not contained any tubes. Transceiver Efir was produced for Soviet collective amateur radio stations, but sometimes, hams can buy Efir for private amateur radio stations.

UW3DI- the Timeless Transceiver: By Igor Grigorov, RK3ZK

Schematic of the transceiver UW3DI at first time was published in 1970 at a Soviet ham magazine "Radio" # 5-6. The transceiver was named UW3DI by the callsign of its author, Jury Kudrjavtsev. Jury probably did not ever suspect, that his transceiver would be the most popular transceiver in the USSR and tens thousands copies of the transceiver would be made by Soviet hams.

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| Russian Districts Award: credit line http://rdaward.org/rda_eng.htm | |
| RDA" (Russian District Award) is an International Awards Program with the goal of attracting interest in Amateur Radio through the communication with various Districts in the Russian Federation. The "RDA" program is established to encourage confirmed contacts with the greatest variety of areas in Russia. There are currently 6 different certificate awards varying in difficulty and complexity, and two plaque awards available for "Honor Roll" and "#1 Honor Roll". | 86 |
| Old Receiving Magnetic Loop Antennas: by Igor Grigorov, RK3ZK | |
| Receiving magnetic loop antennas were widely used in the professional radio communication from the beginning of the 20 Century. Since 1906 magnetic loop antennas were used for direction finding purposes needed for navigation of ships and planes. Later, from 20s, magnetic loop antennas were used for broadcasting reception. In the USSR in 20- 40 years of the 20 Century when broadcasting was gone on LW and MW, huge loop antennas were used on Reception Broadcasting Centers (see pages 93- 94 about USSRs RBC). Magnetic loop antennas worldwide were used for reception service radio stations working in VLW, LW and MW. The article writes up several designs of such old receiving loop antennas. | 87- 92 |
| Broadcasting Receivers of the USSR Wire Radio Centers: by Vitaly Brousnikin | 94- 93 |
| Vitaliy says us some historical notes about old USSR broadcasting receivers of Wire Radio Centers | |
| The First Steps (Part- I): by Vitaly Brousnikin | |
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| Useful Data | |
| Wire Metric Diameter/Gauge Standard | |

Wire Metric Diameter/Gauge Standard

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Just a table for transfer Number # (AWG, BWG and SWG) to diameter in millimeter.

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