

GLOUCESTER COUNTY AMATEUR RADIO CLUB'S OFFICIALS

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BOARD OF DIRECTORS

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"	E. Ross	WA2ZND
2 YEARS	W. Ashton	WB2OYQ
"	D.L. White	N2FKI
1 YEAR	J. Barnish	WB2CAF
"	A. Trueblood	N2FJQ

CLUB REPEATERS

147.78/18 MHz
 224.66/223/06 MHz
 442.100/447.100 MHz:PL 20

CLUB NETS

BOARD OF TRUSTEES

4 YEARS	J.T. Clark	KA2OSV
3 YEARS	H. Spiece	NJ2B
2 YEARS	H. Jackson	WB2GSF
1 YEAR	M. Lizzio	WA2TOP

ARES/RACES

Time: Every Sunday: 2000 Hours ET.
 Repeaters: 147 78/18--224.66/223/06
 Net Control: WB2LNR

10 METERS

Time: Every Tuesday: 2100 Hours ET.
 Frequency: 28.350 MHz
 Net Control: WA2TOP

COMMITTEE CHAIRMAN

ARES/RACES	WB2LNR
AWARDS	K2ZA
BANQUET	N2FJM
CONSTITUTION	WA2NFD
CONTESTS	K2HPV
DATA PROCESSING	KB2CUB
FIELD DAY	KA2DOT
HAMFEST	NJ2B
HEALTH/WELFARE	KD2CR
HISTORIAN	K2PQD
HOUSE	KB2AB
MEMBERSHIP	WB2GSF
NETS	WA2TOP
PICNIC	WA2GFK
SCHOLARSHIP	N2GSF
SITE	WB2LNR
SPECIAL SERVICES	WB2OYQ
SUNSHINE	KB2EUA
TECHNICAL	WA2TML
TRAINING/TESTING	WA2VQG

SITE

Monitors 147 78/18 MHz

PRESIDENT'S MESSAGE
by
K2JF

If we have just completed one of our major operations the Field Day exercise. We have accomplished much so far this year; but, we have much more to accomplish. This coming month will be a busy month trying out our skills for the communities. First we have the Pitman 4th of July Parade where we help in the communications in starting and keeping the parade moving. We have been told that the parade moves better because we are able to keep the Parade Marshalls informed as to the pace of the parade. Second we have our Cancer Bike-A-Thon to Smithville. Let us all get behind WB2OYQ and N2AIV and give them our cooperation. They need help and that is what you are suppose to do help our Special Service Club standing. Then we have the MS-150 and WB2OYQ can sure stand for some help here. So let us get behind these two Bike-A-Thons. Don't forget another of our commitments. The Boy Scout camp. WB2OYQ is spear heading this also. This is a very fine effort for some of you to participate with the young people. The Boy Scouts is an excellent organization for training. I still use some of the training I learned as an Eagle Scout. Here is your chance to help the youth of our area. So let us get behind

our Committee members and DO YOUR PART. Just don't sit back and say "Oh let George do it" become a "George." I am surprised that no one seems to be interested in the Award Program presented this year. It seems that WA2TOP is the only one who has taken advantage of the program. Is it that we have no competitive spirit in our organization? The program was designed primarily for the Novice and Technicians so they would get better operating skills and have more fun on the "HF" bands. This is the time to do it with the rising Solar Flux in Cycle 22. I guess it is just pretty hard to get off of 2meters! As the summer progresses I hope that you all be careful in regards to Sunstroke and Heat exhaustion. These two conditions can be very serious. I know! When I was working out in the West Texas oil fields, I was overcome with Heat Exhaustion and was in the hospital in Midland Texas for over a week and the Doctor informed me I was lucky that my Cardiovascular system was not injured; so, have fun, but please be careful. If you do not know what to do about Sunstroke or Heat Exhaustion I suggest you learn. You could save some's life. The treatments are entirely different. (Boy Scout "First Aid" Merit Badge book is a good source for the information.) Have a lot of fun this summer at your pools

and at the shore or on you vacations, but please be careful.
C U in the File-Ups
73 K2JF

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HAM RADIO OFFICIALLY came to Thailand in January of this year. Thai nationals 15 years of age or older, can apply for a no-code VHF or first/second class HF license (code required.) The United States with several other countries have already applied to the Thai Ministry of Foreign Affairs for reciprocal licensing arrangement which will allow aliens to be licensed. Tnx W5YI/K2JF

ICOM says their new IC-32AT dual band (2meter/450 MHz) five watt hand-held will list for \$629. Featuring crossband operation, you can transmit on one band..and listen on the other! (Well what do think about that)..Tnx W5YI/K2JF

HIGH TECH TALK
Newest technology for the oldest profession!
A multimillion dollar prostitution ring was broken up when a computer operator and his wife were arrested in Long Island, New York, last month. Dominick Volpe used a Wang computer to carefully match client wishes with "entertainers" who were summoned by beepers.

COMPUTER VIRUS
HIGH TECH PC
TERRORISM

Computer Virus is the latest buzzword for uncontrolled self-replicating software designed to disable computer data systems through overload, destroying files, erasing/formatting disks or code modification. It started as a prank but it definitely isn't funny anymore now that its deadliness has become apparent. Powerful "time bomb" parasitic viruses have been developed that attach itself to other software and replicate destroy or revise data and metamorphose into more viruses at different times. NASA was infected with the Scores virus which randomly spread through other programs stored on their computer's disks causing widespread system crashes. The Scores virus quickly spread over NASA's Macintosh local-area networks through the United States and eventually to Apple itself and EDS, the Dallas General Motors owned Electronic Data System. The FBI is now involved. Some of the names for the various virus's are: Zero virus- It writes

50 zeros to the first fifty sectors of any disk. Freehand virus-replicated itself into all uninfected software and after reading an internal clock printed congratulatory messages to Macintosh on the Apple anniversary. Brain Virus-This virus pops up in newspaper processing houses and comes up with such wording as "Welcome to the dungeon. Beware of this Virus. Contact us for vaccination." The same virus wiped out a student's disks and term papers at Bowie State Collage in Maryland and other universities. Trojan Horse- This is a game program. It asks the question how many players then it goes about erasing and formatting all disks on the system while the owner helplessly watches in horror. The April issue of Computers and Security reports on nine major viruses and a number of antiviral vaccine software products now available to combat them. (Some fun..Just think if some joker get's into one of the 9 major bank's computers in the United States and started to play games with the banking industry..FANIC!)
Tnx W5YI/K2JF

FCC

May 9th the FCC has changes the ID rules by which aliens identify their amateur station when operating under a reciprocal permit. Example: a reciprocally licensed West German amateur with the call DL2ABC will become W2/DL2ABC when operating in the U.S. second call district. Tnx W5YI/ARRL/K2JF

SUNSHINE REPORT
by
Miriam Kravitz
FB2EAU

This month was a little better than past months. A Card was sent to Bob Layton on the death of his Father-in-Law. Old member Bill Datz NJ2D in the Pennsylvania Hospital with Cardiovascular problems and was operated on Tuesday, Jue 22nd. He came home one Thursday at noon. Let us hope we continue to have less and less of the unhappy reports and have some nice "Sunshine Reports."

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LATEST HAM
INFO ON
PHONE BBS

From W2XQ comes word at the latest information on hamfests and computer shows can be found on the Pinelands BBS.

Tom also adds that he is the BBS distributor for the PRMBS Packet BBS software. The package can be taken directly from Tom's BBS. To connect to this excellent BBS,

He says 2400, 1200, and 300 baud rates are available. Protocol is 8-N-1. Since Tom does keep an extensive ham radio directory, he asks clubs if they would put him on their mailing lists to receive a newsletter, so he can disseminate your club's information. The address is Tom Sundstrom, W2XQ,

Tnx WA2HEB

"NEW WORLD OF AMATEUR RADIO"

The above ARRL video airs on local cable station. George Ford, K2QIJ, SNJ SEC informed WA2HEB that he has made arrangements to have the League's latest video, "New World of Amateur Radio" aired on the local cable network in the Burlington/Cinnamison area. I don't know how long this will

show, but it illustrates a valuable way of getting good publicity about Amateur Radio. If your group is interested in borrowing this tape from me (WA2HEB) please contact me to make the necessary arrangements. This tape IS permitted to be duplicated. Tnx WA2HEB

SCANNER BILL

Your Club has a rather long, but very article on the fight going on in regards to the scanner bill here in New Jersey. There is a saga of "Minnesota Legislature Looks at 2-Meter Rigs." The bill is very similar to the one in New Jersey. Now here is something to keep in mind THIS COULD HAPPEN TO YOU. Since 1937 there has been a state law prohibiting anyone other than emergency service personnel from having a radio in their vehicle capable of receiving emergency transmissions. The radio manufacturers have included wide band receive coverage in virtually all the new model 2-meter radios. A partial list of the radios which have wide band receivers includes the ICOM 28A/H mobil, ICOM 02AT handheld, ICOM IC 2A1 handheld, ICOM 275 all mode, Azden PCS-5000 mobile, Yaesu FT-23R

handheld, Kenwood TM-221A mobile, and Kenwood TH215A handheld. Several other models are capable of emergency service coverage as well with modification. If corrective legislation is not passed, it will be ILLEGAL to have any one of the new rigs in your automobile, even if you are a licensed amateur using the radio only for amateur radio purposes. If you are stopped by an officer and it is discovered your radio is capable of receiving emergency communications, you are subject to a citation and fine. Tnx WA2HEB

VEC TESTING IN SNJ

Monthly: 3rd Thursday at the Basement training Room of the Bellmawr NJ Community Building, Browning Road at Lewis Ave, in Bellmawr. Sessions begin at 7 PM (doors open at 6:15). For further information contact Bill Helmetyag, WA2V0G

DVRA: JULY 16, SEPT. 17 at the Hopewell Twp. branch of the Mercer County Library, W. Delaware., Pennington. Sessions begin at 12:30 PM. For information to reserve your exam contact Don Wright, AA2f

RADIO NOISE REQUIRED SIGNAL STRENGTH

A. Required Signal Strength-- The minimum radio field intensity necessary to allow the satisfactory reception on a intelligible signal of a particular type in the presence of radio noise at the receiving station is called the required signal strength for this type of service. As a propagation factor, the required signal strength is subject to wide variation. It depends on the receiving set; the local noise or STATIC; the type of modulation of the radio wave, or, in other words the type of service; and the grade of service desired--e.g., barely intelligible, high fidelity and so on.

Types of Radio Noise-- Radio noise may be defined as interference, the energy of which is not confined to a narrow band of frequencies. Two general types of noise may be distinguished-- (1) Impulse noise, which is interference resulting from a single elementary disturbance, or from an aggregate of elementary disturbances with systematic relative phase; and (2) Random, or fluctuation noise, which is the aggregate of a large number of elementary disturbances with random relative phases. A distinction between impulse and random noise is not always easy to make. However, electrical, or man-made, noise caused by the operation of electrical equipment is usually of the impulse type, whereas atmospheric noise, originating in thunderstorms, or caused by other atmospheric conditions, ordinarily may be considered to have the bandwidth characteristics of random noise. The best example of random noise is the fluctuations noise originating in the resistance components of impedance elements in the receiver or brought about by the fluctuations of electrons in the front end of the semiconductors or vacuum tubes. Another example is the noise generated by cosmic rays, which are sufficiently high in frequency to penetrate the atmosphere of the earth. This cosmic noise is noticeable only in receivers capable of detecting these frequencies.

(1) Atmospheric Noise.. As the frequencies under consideration in this series, atmospheric noise and precipitation noise are the most important types to be considered. Radio noise from electrical apparatus, such as the ignition systems of automobiles, may be very serious, but is, more or less, under the control of the observer, and can be largely eliminated if necessary. Atmospheric or precipitation noise, on the other hand, since it originates in thunderstorms, or in rain, snow, or dust storms, usually cannot be eliminated and thus sets the limit for radio reception. Most atmospheric noise is considered to originate in the lightning flashes associated with thunderstorms.

(2) Cosmic and Solar Radio Noise.. Between frequencies of about 10 and 100 MHz, cosmic radio noise originating in interstellar space is known to be the principal source of interference to reception under many circumstances. As stated, above cosmic noise has about the same characteristics as the fluctuations noise originating in components of a receiving set. The sources of cosmic noise are not distributed evenly over the sky but tend to be concentrated in several regions of the celestial sphere, the principal of these regions being near the center of the MILKY WAY. Consequently, when received on a directional antenna, the noise varies in characteristic manner from hour to hour and from day to day. The reason for the existence of cosmic noise is not well known. Your author did some studies into noises from the MAGNETOSPHERE and found some very interesting results. This along with the study of the "LUXENBOURG" effect. Some investigations believe it to be radio frequency radiation from eruptions, similar to the spot eruptions on our sun, occurring on all the stars in the galaxy; others have considered it as originating in electron activity in the space between the stars. Recently, it has been found that the sun also acts as a radiator of radio noise at frequencies from about 200 MHz up. Except at the time of large sun eruptions, solar noise is important only on very high frequencies and when highly directional antennas actually are pointed at the sun.

(3) Receiving Set Noise.. Noise generated internally in a receiving set is caused by the random motion of electrons in resistance components of impedance elements and in the fluctuations of the electrons in vacuum tubes and semiconductors. In the absence of all external noise, signals, to be intelligible, must be strong enough to override this internal noise. With only internal noise present, the ability of a receiver to receive a signal usually

is expressed as the noise figure of the receiver. Experimental determination of the receiver input terminal voltage required to over ride the internal noise. The modern Amateur receivers have excellent noise figures.

C. Noise Figure.. For many years, radio engineers were faced with the problem of devising a system for rating a receiver or an amplifier on its merits from the standpoint of noise. The problem was complicated by the fact that in addition to the useful output voltage of a generator (the generator, under operating conditions, being an antenna and the useful output voltage being the desired signal voltage) a certain noise voltage is always present. In an antenna, this noise voltage would include that caused by thermal resistor noise, and atmospheric and cosmic noise; in a standard voltage generator, this voltage would include resistor noise. Because of the fluctuations of atmospheric and cosmic-noise voltages with time, location, and construction and orientation of the antenna, these noise voltages do not offer constant standard for rating a receiver or an amplifier. However, thermal noise, presenting a readily computed voltage, offers a satisfactory standard against which the noise introduced by a receiver or an amplifier can be rated. Based on this principle, a system of rating a receiver in terms of the noise figure has been devised for this purpose. (1) In a receiving system, the total noise is the sum of the tube, or semiconductor noise, the thermal noise in the input circuit, the thermal output circuit, and the antenna noise. Antenna noise is the induced atmospheric and cosmic noise appearing at the receiver input. (2) The signal-to-noise ratio of an ideal receiving system can be expressed as:

Signal-to-noise power = ratio of ideal system ideal available noise power

Where the ideal power available noise power is the power developed across the antenna resistance by the thermal noise voltage. The available signal power at the receiver input is the power that the signal will develop across the input resistance equivalent to the antenna resistance. Noise figures usually are expressed in terms of power ratios in DB. (3) The noise figure of an actual receiver is obtained from the following ratio:

Signal-to-noise power ratio for an ideal receiver Noise figure =

Signal-to-noise power ratio of an actual receiver

(4) The required signal power at the input of an actual receiver is the required signal power for an ideal receiver multiplied by the receiver noise figure for the same signal-to-noise ratio.

(D) Types of Modulation and Service Gain.. Other factors upon which the required signal strength of a receiving system depends are known as type of modulation and type of service gain. Higher signal-to-noise ratios are required in commercial high-quality broadcast work than in many other types of service including the amateur service. On the other hand, in general code systems, such as automatic high-speed telegraphy or teletypewriter systems, the output signal-to-noise ratio need not be large, since the mechanism operates when the signal exceeds the noise by only a small margin. The gain required for a certain type of service is the relative signal strength required for the type of communication as compared with the signal required for a reference type. This reference type of service corresponds to 90 percent intelligibility of speech and is comparable to the grade of service known as order wire in telephone communications.

This is the last of the IONU series I hope that you have enjoyed the series and perhaps found some helpful information. I am considering preparing a summary of the articles in paragraph form,

**JULY MEETING
AT SITE 1900 HOURS
BRING CHAIRS**

JULY MEETING
AT THE SITE
1900 HOURS
BRING CHAIRS

The July meeting (Wednesday July 6th) is planned to be held at the Site weather permitting. If the weather forecast calls for 60% or more chance of rain the meeting will be held at the usual place (V.F.W. Hall in Woodbury) at the usual time 2000 hours. PLEASE LISTEN TO THE REPEATER 147 78/18.

It is hoped that we may have a short meeting and the members will be able to see their Site and see what has been done and how they can use it.

DX REPORT
by
KB2BF

Summer is here, and it sounds like we have some new and improved antenna systems around South Jersey in various stages of completion. Take advantage of the weather and work on your antennas and improve your station and watch the QSL cards start coming in and your countries worked climb towards DXCC or one of the Honor Rolls (ARRL or CQ).

In case there are any "FM only types" out there, DUST OFF THE HF RIG !! As the sunspots are rapidly climbing, 20-15-12-10 meters are red hot ! 20 has been open virtually around the clock, with 15 following suit more than once this past month. 12 and 10 have been good during daylight, but fade fast in the early morning. But for 15-- When you get home from work, turn your antenna NW, and you will find excellent propagation to JA land and other Asian points. If your antenna is high enough, you can usually work them as late as midnight but a low angle of radiation is needed as the band is closing. This is quite noticeable on the JA's - the ones with 40 foot high antennas are really down in the noise but the ones at 75 feet are Q-5 with the same power and equipment. On the 5th, conditions were superb, and I had a pile-up of JA's going on 15 at 0400 EST ! Out of it I managed to dig out a QRP station - he was using ONE WATT ! It wasn't easy copy, but we exchanged reports, calls,

and his QRP making it

Out of it I managed to dig out a QRP station - he was using ONE WATT ! It wasn't easy copy, but we exchanged reports, calls, and his QRP making it a good contact. JA1FVE was 4-4, I was 5-9. So don't assume 15 is dead late at night - take a listen. *** Concerning VHF *** Do any of you want to hear of VHF DX ? Let me know. They have been having their share of DX too, with 6 meters E skip, and tropo up as high as 2 Gigahertz. 6 has been open several times to Europe, Africa, and the west coast. There are many more Europeans permitted on 6 now compared to the last cycle, and they are taking full advantage of it. 2 meters has seen sporadic E skip to the midwest, the west coast, and Florida. And the big news -- Via tropo several locals worked a VP5. He worked as far north as New England In closing, any comments, suggestions, or questions are welcomed and should be directed to: KB2BF,

73 Fred.

S M T W T F S

	JUNE S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	AUGUST S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31			1	2
3 GCARC ARES NET	4 GCARC PARADE PITMAN INDEPENDENCE DAY	5 GCARC 10 MTR NET	6 LAST QUARTER MOON GCARC MEETING SITE	7 WEDUO CANCER MEETING	8	9 SITE WORK PARTY
10 GCARC ARES NET	11	12 GCARC 10 MTR NET	13 NEW MOON HAMPSTE MEETING SITE	14	15	16 SITE WORK PARTY
17 CANCER BIKE A THON	18	19 GCARC 10 MTR NET	20 BOARD DIR. MEET SITE	21 VEC TESTING BELLMAWR	22 FIRST QUARTER MOON.	23 SITE WORK PARTY
24 GCARC ARES NET	25	26	27	28	29 FULL MOON	30 SITE WORK PARTY
31 GCARC RES ET		GCARC 10 MTR NET				

FIELD DAY

Wow what a time. KA2DOT you did yourself proud on this one Art. The people are saying "Well-Done." You who did not come out, you missed a real good time. Included here are some of the rough statics of how we done. You who stayed home should really have come out and participated, or at least come out and see KA2ZZA handle 80 CW for awhile, KB2EAL work that mike, and the YL,XYL's doing all kinds of operating and doing chores. It was some time. Ask some of the fellows if they know how to drive stakes into concrete ! Yes we had out "tall-tower" put up by the "tall-tower" crew and it worked like a charm. Good job done by all. Thanks to all for doing a good job in "policing" the job place after the affair was over. It will make a good impression and a lot less work for a couple of guys I know. Here are the ROUGH scores as of Monday night. (Remember Art has to refine all the logs):

Total
Phone---1724....Total
GW (counts 2 each)
--1148 (nr
2296...Plus all the
other multipliers
gives us a grand
score of:

9490 (1907

8024)

Talking about doing a bang-up job..that gal ROZ NEABL. All you can hear from the people who were at Field Day, is praise praise,praise. What a cook. Roz how you managed to do all that work; make all those hoagies,sandwiches,an cook that breakfast, then have all those snacks and "soda-pop" on ice--just everything. and then clean up the place..You are terrific ! Thanks Roz "Well Done."

PARK IT

If you have ever felt like being a parking lot attendant this is your chance. Geive me a call Howard (WA2IBZ) on the air Only a few hours of your time is needed. The event - the 4-H Fairgrounds Association is having their annual Gig on July 28, 29, & 30th. In addition to helping the - 4-H people, it sure helps our Club. So give me a call. Tnx & 73 Howard WA2IBZ.