11/97

ARRL CLUB #1602

U.A.R.C. Officer Nominations
This Meeting... Be There!

Published by the Utah Amateur Radio Club HAM HOTLINE-583-3002 The MICROVOLT 632 University Street, Salt Lake City, Ut. 84102

Volume XLI Issue 11, Nov, 1997

the

MICROVOLT

Periodicals

PLEASE SEND DUES TO: SI
U.A.R.C.
c/o GARY OPENSHAW
861 ROOSEVELT AVE.
S.L.C. UT 84105

THE MICROVOLT (USPS 075-130) is published monthly except August for $6 per year or 60 cents per issue by the Utah Amateur Radio Club, 632 University St. Salt Lake City, UT 84102.
Periodical postage paid at Salt Lake City UT. POSTMASTER: Send address change to "The Microvolt" 861 Roosevelt Ave., Salt Lake City UT 84105

1997 Utah Amateur Radio Club Officers and Others

President- Alan Seyboldt KC7MUZ
(Hm) 572-8112
Alan cialropt@burgoyne.com

Executive Vice President-Cindy Peters KB7OUT
(HM) 268-4410

Vice President-Gordon Smith K7HFV
582-2438

Secretary- Gary Openshaw KC7AWU
861 Roosevelt Avenue,
SLC UT 84105 484-3407

Past President-Bruce Bergen KI7OM 943-1365

Board Liaison Gordon Smith K7HFV 582-2438
Treasurer-Chuck Johnson WA7JOS
268-0153 chuck@bts slc.com

Microvolt Editor- Cokie Eddy KC7MDV
147 B/C E. 4th Ave, Dugway, UT 84022
522-4474 Internet address: cokie@cybernet.com

Asst. Microvolt Editor-Maurine Straktenfinger KC7HOZ
254-1536

Program Chairpersons
Jack Warren KC7KEL- Linda Reader N7HVF
Linda-364-7006
Jack-268-8069

Ham Hotline-Verna Bennion
583-3002

Book Dealer-Fred DeSmet KI7KM
2333 East 3225 South.
SLC, UT 84109 485-9245

Historian-Carol McWherter KC7LLW

ARRL Sect. Mgr. For Utah-Jim Rudnicki NZ7T

UARC REPEATER COMMITEE
Trustee-Ron Jones K7RJ 561-2685

Janitors and Ticket-takers
Lon Stuart's Trolls

Repeater Engineer-Randy Finch K7SL 277-7135
Autopatch. Eng.-Gordon Smith K7HFV
Asst. Rep. Eng.-John Parker KA7GZH

Repeater Monitor-Allen Wright N7QFI
268-8482

Printing By-Don Baumgartner WN7D
BEEHIVE PRINTING
3336 S. 300 East
SLC, UT 84115 485-9178

Microvolt Midnight Copy-Editors and Coordinators of Mischief- Lon Stuart's Trolls

The Utah Amateur Radio Club was organized under it's present name in 1927, although its beginnings my date back as early as 1909. In 1928, it became affiliated with the American Radio Relay League (club #1602) and is a non-profit organization under the laws of Utah. It holds a club station license with the call W7SP, a memorial call for Leonard (Zim) Zimmerman, an amateur radio pioneer in the Salt Lake City Area. The club meets each month except July and August. The meetings are held on the first Thursday of the month at 7:30 PM in the Exhibition hall located on the Salt Lake County Fairgrounds just south of Murray City Park. Club membership is open to anyone interested in amateur radio; a current license is not required. Dues are $13 per year, including a MICROVOLT subscription. Those living at the same address as a member who has paid $13 may obtain a membership without a Microvolt subscription for $9. ARRL membership renewals should specify ARRL Club #1602. UARC maintains the following repeaters: 146.62 (minus) and 449.10. The repeaters are administered by the UARC repeater commitee. Comments and questions may be directed to any commitee member. The Lake Mountain repeater (146.76 minus offset) has Autopatch facilities on both the Orem exchange (covering Santaquin to Lehi) and the Salt lake City exchange (covering Draper to Layton). The 449.10 repeater has autopatch facilities into Salt Lake City only. Due to the volume of traffic, only mobiles should use this autopatch. Autopatch use is open to all visitors to our area and to all club members. Non members who wish to use the Autopatch are encouraged to help with and maintaining a club membership. THE MICROVOLT: The Microvolt is the official publication of the club. Deadline for submissions to the Microvolt is the 10th of each month prior to publication, except Aug. All submissions are welcome but what is printed and editing are the responsibility of the UARC board. Reprints are allowed with proper credits to the MICROVOLT, UARC, and authors.

THE DESERT EDITION OF

THE MICROVOLT

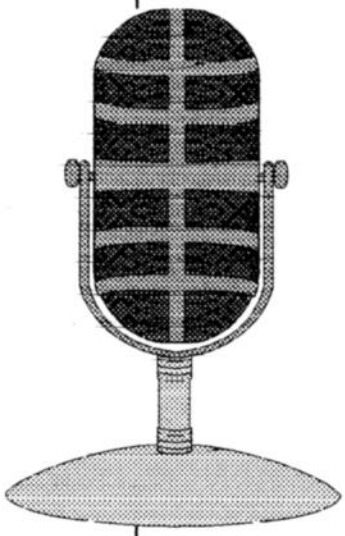
Publication of the Utah Amateur Radio Club

VOLUME XLI ISSUE 11 NOV, 1997

Feature Of The Month

.This month we are featuring Darryl Hazelgren AF7O. Darryl has his own business Imagetech. He sells high power tech equipment.
When Darryl and his friend Dennis Utley AF7Y were in the ninth grade they were studying together to get their ham licenses. Lynn Johnson K7KC was their Elmer. In 1959 Darryl received his first license and in 1976 obtained his extra class license. Darryl's favorite facet in amateur radio is contesting. Just recently Darryl, his friend Dennis Utley AF7Y and Dennis's son John Utley K7CO attended a QSO party in Napa, California. Darryl says they set a new record for Napa County. Even though his first love is contesting he has always wanted to go on a DX expedition. His first opportunity was many years ago with The Utah DX Association which he is a member of to Fort Bridger, Wyoming. His next opportunity to go on a DX expedition was just a couple of weeks ago. Darryl went to the Willis Island Coral north east of Australia. Darryl flew from Salt Lake City to LAX then to Auckland New Zealand and then on to Cairons where he boarded the boat Floret. He was with an international team of ten members and three of them were YLS. Some were from Japan, Italy, Caladonia, New Hampshire and of course Salt Lake City, Utah. They used HF ten meters to 160 meters. They also used the WARC bands 12 meters, 17 meters and 30 meters. WARC stands for world radio conference. They were on the sea for 30 hours. They made 40,250 contacts. Some of the contacts were in Salt Lake City, Utah. Lynn Johnson K7KC was one of them. The next expedition will be some time in January. Darryl will be going with the Central Arizona DX association to the Indian Ocean. Darryl is also a member of this association and he is a member of UARC. We will be having Darryl as a guest speaker for the UARC January meeting. Darryl, good luck on your expeditions.

73 N7HVF Linda Reeder



The Address For The Microvolt Editor IS:
Cokie Eddy
117 East B/C 4rth Avenue,
Dugway, UT 84022
New Phone 522-4174 (Ditto Exchange)
Or 1-435-831-4174 (Long distance)

UTAH AMATEUR RADIO EXAMINATION SCHEDULE

EXAMINATION PROGRAMS BY CITY

City: Brigham City Contact Person: Terry Wyatt
VEC: ARRL Phone: 458-2216
Location: Box elder High School Computer Lab
Schedule:
Thursday April 24 7:00 PM
Thursday June 12 7:00 PM

City: Farmington Contact Person: Brent Thomas, AC7H
VEC: ARRL
637 East 2150 South
Bountiful, Utah 84010
Home Ph: 298-3322 Bus. Ph: 538-3700
Location: Davis County Jail Complex,
800 West State St.,
Farmington
Service entrance
Schedule:
First Wednesday of Jan., Mar., July, and Sept., 7 p.m.

Contact Person: Paul Hansen, WO7N City: Logan
VEC: ARRL
1676 East 1600 North

Logan, Utah 84321
Home Ph: 753-4843 Bus. Ph: 752-6425
Schedule: Second Saturday of April and October, 9:00 a.m.

Contact Person: Matthew George, AB7GM City: Ogden
VEC: ARRL
473 Hiland Road
Ogden, UT 84404
Phone: 393-9159
Recorded exam information: 627-6064
Location: Weber State College, Science and Technology Building, Rm 228
Schedule: First Saturday of May and November, 8:00 a.m.

City: Provo Contact Persons: Steve and Linda Whitehead
VEC: W5YI
497 South 700 East
Payson, Utah 84651
Home Ph: 465-3983 Bus. Ph: 225-5200
Location: Provo Campus of Utah Valley State College
Schedule: Third Wednesday evening of each month
Notes: Do not confuse this location with the larger Orem campus.

City: Salt Lake City Contact Person: Gordon Smith, K7HFV
VEC: ARRL
632 University Street
Salt Lake City, Utah 84102
Home Ph: 582-2438 Bus. Ph: 532-3400 Ext. 8116
Location: Blue Cross/Blue Shield Cafeteria
2455 East Parley's Way, main (west) building,
West door
Schedule: First Saturday of Feb., APR, June, Aug. and Dec.
20 w.p.m.: 8:00 a.m.
13 w.p.m.: 8:30 a.m. 5 w.p.m.: 9:15 a.m.
No code test needed: Any time between 8 and 10 a.m.
Notes: Preregistration is required. The owners of the building require that the door be kept locked. Those who preregister will receive the code required to get in. Preregistration also speeds the session and gets licenses on the way faster after the session. It takes only a few minutes by phone or on the air. Gordon usually monitors 146.62.

City: Salt Lake City Contact Person: Eugene (N7OVT)
or Carol McWherter, (KC7LLW)
VEC: W5YI
536 E. Leland Avenue
Salt Lake City, Utah 84115
Home Ph: 484-6355
Location: LDS Church 2700 S. 300 East. South Salt Lake
Pre-registration preferred. Please leave message if not at home.

Schedule: Last Tuesday of each month, 7 p.m.

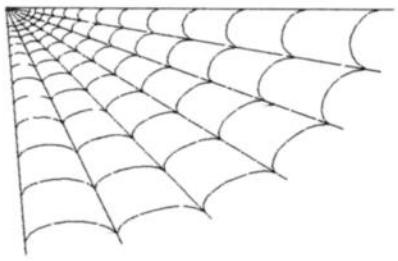
Notes: This session is intended primarily for those seeking Novice, Technician, or Technician-plus licenses. Only elements 1A, 2 and 3A will be administered. Pre-registration is required.

THINGS TO BRING TO TEST SESSION

1. Two forms of ID (If licensed , your original and one form of ID)
2. $6.05 - Cash or Check.
3. A copy of your licensee, and or copies of your pending 610 form or certificate of credit along with the original.
4. You may bring a filled out 610 form or a form will be available at the test session.
5. Pencils or pens.
6. You may bring a calculator but you must show that it is not pre-programmed.

You may use a typewriter or lap top computer only if you make arrangements in advance.

WEB- INFO



UARC WEB PAGE ADDRESS!
http://www.xmission.com/~uarc

MY NEW E-MAIL ADDRESS COKIE@CYBERNECT.COM
OUR ARRL SECTION MANAGER JIMKATPA@AOL.COM
ARRL HOME PAGE HTTP://WWW.ARL.ORG
CALL SIGN LOOKUP
HTTP://WWW.UARL.EDU/DOC/HAMULR/CALLSIGN.HTML
CANADIAN BACON (HAMS) HTTP://WWW.RAC.CA

DX INFO
HTTP://WWW.CLINETIFI/~JUKKA/WEBCLUSTER.HTML
ELECTRONIC SWAPMEET
HTTP://WWW.WESTES.COM/ADS/ADS.HTML
OUR FEDERAL GOVERNMENT
HTTP://WWW.FEDWORLD.GOV
F.C.C. HTTP://WWW.FCC.GOV
HOUSE OF REPRESENTATIVES HTTP://WWW.HOUSE.GOV
INTERNET/PACKET GATEWAY
HTTP://WWW.W2XO.PGH.PA.US
I.T.U. INFO HTTP://WWW.ITU.CH
LAT./LONG LOOKUP HTTP://WWW.MIT.EDU:8001/GEO
NEIGHBORHOOD ANTENNAS
HTTP://WWW.HAMWEB.COM/~SJL/STONER/ANTENNA.HTML
NTIA HTTP://WWW.NTIA.DOC.GOV
SARAX
HTTP://WWW.NASA.GOV/SAREX/SAREX_MAINPAGE.HTML
WHOWHERE? (FIND PEOPLE YOU ARE LOOKING FOR)
WWW.WHOWHERE.COM

UTAH AMATEUR RADIO CLUBS

UARC or Utah Amateur Radio Club meets the first Thursday of each month except the months of July and August. The meeting is held in the Theatre Building located on the Salt Lake County Fairgrounds (5200 S. and 200 E.) just south of Murray Park at 7:30 PM. There is a newcomer's meeting held prior to the main meeting at 7:00 PM.

The Davis County Amateur Radio Club meets the 2nd Saturday of each month at 10:00 AM at the Davis County Sheriff's Office, 800 West State street, Farmington UT. Members and nonmembers are welcome. Dues are $15.00 per year and can be paid at any Club meeting. The Davis Club supports the 147.04 repeater. DAVIS ARES conducts a net each Thursday at 7:00 PM on 147.42 simplex. They also have a DAV node for packet on 145.07. For further information please contact Kent Whitney KI7ST 444-1264

OARC or Ogden Amateur Radio Club meets the 3rd Wednesday of each month in Ogden at 7:00 PM. The meetings are held at the Red Cross building at 2955 Harrison BLVD. Members and nonmembers are invited. Dues are $15.00 per year and can be sent to P.O Box 3353, Ogden, Utah 84409. OARC supports the 146.90 repeater and conducts a net there Tuesdays at 7:30 PM. They also support the 146.82 repeater. The contact person is Jerry Peters WA7ADK who can be reached at 825-8798.

The VHF Society is a group dedicated to maintaining a system of repeaters in our area. Dues are $10:00 per year and can be sent to PO Box 482 Bountiful Utah 84011-0482. The VHF Society holds a swap and traffic net for it's members each Tuesday night at 8:00 P.M. on the 146.940 repeater. For further information please contact Eldon Keari KB7OGM at 571-9955.

Salt Lake County ARES (Amateur Radio Emergency Services) conduct a net each Wednesday Night at 8:00 PM on the 146.88 repeater. All amateurs are welcome to participate. Their in-person meeting is held the third Wednesday of each month. For more information please contact Kirk Boman 278-9799 or Jerry Wellman Wb7ULH 969-8258

Utah Valley ARES holds their general meeting the 1st Tuesday of every month at 7:00 PM. They also conduct a net each Tuesday at 9:00 P.M. on the 147.34 repeater which is also linked to the 224.7 repeater. The contact person is Robert Earl. N7EGG at 225-8870

MARA or Mercury Amateur Radio Association is a world wide group of Radio Amateurs dedicated to training and traffic handling for emergency operation. They conduct VHF nets each Wednesday at 9:00 PM. They
also conduct health and welfare traffic net on 3.873 MHz (80 meters). The Salt Lake area is on the 146.74 repeater and their contact person is Willy Peake N7VVL at 466-1114. The Ogden area is on the 145.49 repeater and the Provo area on the 145.37 repeater with Vince Newmeyor N7MLP at 785-5611 as their contact person.

UPRA (Utah Packet Radio Association) holds their general meeting on the 2nd Saturday of each month at 2:00 PM at the State Capitol Annex Building north of the State Capital. All amateurs are welcome. The purpose of the Club is to educate people who are new to packet and to coordinate packet activities. Their dues are $15.00 per year and can be sent to PO Box 92 Riverton, UT 84065. Their contact person is Jack Christensen, KC7NX at 277-6629.

UBET (Utah Box Elder Thiokol) holds a net every Wednesday at 8:00 PM on the 145.43, 448.300 , 145.29 repeaters. Net control changes monthly. Contact Wayne jensen AB7TS for details about net. Club meetings are held the first Tuesday of every month at 7:00 PM in the Thiokol Rec. Council Building (old J.C. Penney's building) 62 South Main Street. (East side of street next to Brigham City sign.) Club President is Doug Nelson KC7HGL 257-1520.

THE BRIGERLAND AMATEUR RADIO CLUB meets the 2nd Thursday of the month (except June, July, and August) in the basement of the Sheriffs Office. They hold a net at 9:00 PM on the 147.20 repeater every Tuesday. Their contact person is Dean Stevens N7WVY at 753-2664.

THE UTAH TCPIP Users Group Of UTUG is an informal group that discusses TCPIP protocols and other packet information. The are geared to all levels of users, new and seasoned. They hold a weekly net Sundays at 8:00 PM on the 146.620 repeater. Their contact person is Matt Simmons KG7MH at 965-1038

The High Valley Net from Heber meets every Monday at 9:00 PM on the 147.18 repeater. Their contact person is Doug Neilson, N7PPW at 756-5927 or Joe Chenworth, KG7GY at 564-3598

The University of Utah Radio Club is open to University Staff, alumni and students. There is a fully equipped station available 24 hours a day. Their contact persons are Marvin Match KA7TPH at 581-6085 or Clint Turner KA7OEI at 972-5541

The Salt Lake Community College Amateur Radio Club is open to anyone. They would like to welcome interested parties to join them. They meet on the South campus in room N285 on the first Saturday of the Month at 3:00 PM. Please contact Keith KI7SL at 957-3247

Rocky Mountain Radio Assn. is open to all Utah hams and they support the 447.900, 448.400, 448.700 repeaters. Their net is on 447.800 and 52.525 (six meters) every Wednesday night at 8:00.
Please contact Marc Peterson (KB7YJJ) at 977-1845 for info!

??????????????????????????

BYUARC (Brigham Young University Amateur Radio Club) is open to all alumni, faculty, staff and students of BYU. The club maintains the 147.26+ repeater that has an Autopatch for members to use. The dues of $15.00 covers Autopatch usage for a whole year. The club also has a shack with a variety of equipment. Members have the opportunity to provide emergency communications for the campus. Meetings are held the second Thursday of each month, and the location varies. The information line for the club is 378-COAX, or you can contact the president, Andrew Barney by email at WH6KU@byu.edu.

Amateur Radio Explorer Post #1973 is a coed post open to all young men and women ages 14-20. The post is supported by a committee of hams over age 21. The post meets on the third Wednesday of each month at 7:00 at the UVSC Provo campus, and holds a net on the 147.34+ machine on the first Wednesday of each month at 8:30 p.m. Post members provide communications for various parades, boy scout functions and participate in other ham groups. Contact person is post president Sariah Whitehead KC7KEI 465-3983, Committee Chairman Derick Wolsleger KC7KRS 465-1134 KC7KRS@ucares.org, or Advisor Terry Gardner N7QGA 785-7517 terrygardner@juno.com.

OCTOBERS UARC meeting was really great. John Lloyd, who was scheduled to talk with us about the LINK, was going to be out of town. He was but since Glen Worthington is his boss John was at the meeting by way of US satellite and amateur television. John could see and talk to us at the meeting while in Chicago. It was so neat Eldon and Clint did an excellent job pulling that one off. He could hear us and we could hear him. They told us what they went through in setting these links up. They told us the courtesy rules when using this repeater. John said that we should only stay on the repeater five to seven minutes. It is linked from Las Vegas to Idaho. We even got to talk with the Idaho link at the meeting. This meeting was really great.

N7HVF Linda Reeder

What To Do This Year?

Nov. 6. HOMEBREW
Dec. 4 Elections.
Dec. 25 Christmas
Dec. 31 New Years Eve

1997 ARRL November Sweepstakes Rules

By Billy Lunt, KR1R, Contest Manager (blunt@arrl.org)

1) Object For stations in the United States and Canada (including territories and possessions) to exchange QSO information, as detailed in Rule 4, with as many other US and Canadian stations as possible on 160 through 10 meters, excluding 30, 17 and 12 meters.

2) Contest Period

A. CW -- First full weekend -- November 1-3, 1997.

B. Phone -- Third full weekend -- November 15-17, 1997.

C. Time -- Begins 2100 UTC Saturday and ends 0300 UTC Monday. Operate no more than 24 of the 30 hours. Off periods may not be less than 30 minutes in length. Times off and on must be clearly noted in your log, and listening time counts as operating time.

3) Categories

A. Single operator One person performs all transmitting, receiving, spotting and logging functions.

B. Multioperator, single transmitter only Those obtaining any form of assistance such as relief operators, loggers or use of spotting nets, including Packet Clusters.

C. QRP, single operator QRP is defined as 5 watts output or less.

4) Exchange A consecutive serial number, precedence ("A" if you run 150-W output or less, "B" if more than 150 W, or "Q" if 5-W output or less), your call sign, check (last two digits of the year you were first licensed) and your ARRL/RAC Section. For example, WJ1U answers W1AW's call by sending W1AW NR178 A WJ1U 89 CT for QSO number 178, less than 150 W, first licensed in 1989 and Connecticut Section.

5) Scoring

A. QSO points Count two points for each complete two-way QSO. No cross-mode contacts. Work each station only once, regardless of the frequency band.

B. Multiplier Each ARRL section (listed on page 12 of this issue) and RAC section plus VE8/VY1 -- maximum of 79. KP3/KP4 is the Puerto Rico Section, KV4/KP2 and KG4 (Guantanamo Bay only) stations are in the Virgin Islands Section, and KH6 and other US possessions in the Pacific count as the Pacific Section.

C. Final score Multiply QSO points (two per QSO) by the number of ARRL/RAC sections (plus VE8/VY1).

6) Miscellaneous

A. A transmitter used to contact one or more stations may not subsequently be used under any other call during the contest period (with the exception of family stations).

B. One operator may not use more than one call sign from any given location during the contest period.

C. The use of two or more transmitters simultaneously is not allowed.

D. The use of non-Amateur Radio means of communication (e.g., telephone) for the purpose of soliciting a contact (or contacts) during the contest period is inconsistent with the spirit and intent of this announcement.

7) Reporting

Entries must be postmarked no later than 30 days after the end of each contest (CW -- December 3, 1997; Phone -- December 17, 1997). No late entries can be accepted. Paper entries with more than 200 QSOs must include cross-check sheets (dupe sheets). Use ARRL November Sweepstakes forms, a reasonable facsimile, submit entry on diskette, upload your entry to the ARRL BBS, or send your entry to ARRL HQ via Internet.

A. You may submit your contest entry on diskette in lieu of paper logs. The floppy diskette must be IBM compatible, MS-DOS formatted, either 3.5 or 5.25 inch (40 or 80 track). The log information must be in an ASCII file, following the ARRL Suggested Standard File Format, and contain all log exchange information (band, date, time in UTC, call of station worked, complete exchange sent, complete exchange received, multipliers [marked the first time worked] and QSO points). One entry per diskette. An official summary sheet or reasonable facsimile with signed contest participation disclaimer is required with all entries.

B. You may submit your contest entry via the ARRL BBS (860-594-0306), anonymous FTP to ftp.arrl.org, or via Internet to contest@arrl.org. Send your summary sheet file (Make sure it includes all the pertinent information outlined in the official ARRL summary sheet.) and your log file following the ARRL Suggested Standard File Format.

8) Club Competition: ARRL-affiliated clubs for club gavels and awards in the local, medium and unlimited categories.

9) Awards: Certificates to the top single operator CW and phone scores in "A," B" and "Q" categories in each ARRL/RAC Section, and the top multioperator entry in each ARRL Division and Canada.

10) Condition of Entry: Each entrant agrees to be bound by the provisions as well as the intent of this announcement, the regulations of his licensing authority and the decisions of the ARRL Awards Committee.

11) Disqualification: See the Contest Disqualification Criteria. These criteria are published annually in The ARRL Contest Yearbook, on ARRLWeb (http://www.arrl.org/contests/ccdq97.html#disqualification), and were last published in QST in the August 1995 issue (page 118).

1997 ARRL International EME Competition Rules

By Billy Lunt, KR1R, Contest Manager

1) Object: Two-way communication via the Earth-Moon-Earth path on any authorized amateur frequency above 50 MHz.

2) Contest Period: Two full weekends, October 18-19 and November 15-16, 1997; full 48-hour period UTC each weekend.

3) Categories:
A.Single operator: One person performs all operating and logging functions, equipment adjustment and antenna alignment.

1. Multiband.

2. Single-band: Single-band entries on 50, 144, 222, 432, 902 and 1296-and-up categories will be recognized in awards offered. Contacts may be made on any and all bands without jeopardizing single-band entry status. Such additional contacts are encouraged and should be reported. Also see Rule 8 Awards.

B. Multioperator: Two or more persons participate; includes neighboring amateurs within one call area, but with EME facilities for different bands on different team members' premises, as long as no two are more than 50 km (30 miles) apart. Multioperator neighborhood groups cannot use the same call signs at each location; all call signs will be listed in the results.

C. Commercial equipment: Stations using equipment that is not amateur (such as a dish antenna for lab equipment owned by an institution or government agency) will have their scores listed separately.

4) Exchange: For a valid contact to occur, each station must send and receive both call signs and a signal report in any mutually understood format, plus a complete acknowledgment of the calls and report. Partial or incomplete QSOs should be indicated on your log, but not counted for contest credit. Stations may be worked once per band for credit.

5) Scoring:
A. QSO Points: Count 100 points for each complete EME contact.
B. Multiplier: Each US and Canadian call area, plus each DXCC country (not US/Canada) worked via EME on each band.
C. Final Score: Multiply QSO points by sum of multipliers worked on each band for your final score.

6) Miscellaneous:

A. Fixed or portable operation is permitted. Stations operating outside traditional call areas must indicate so, identifying the call area of the operating site.
B. Contacts may be on CW or SSB. Only one signal per band is permitted.
C. A transmitter, receiver or antenna used to contact one or more stations under one call sign may not be used subsequently under another call sign during the contest, except for family stations, and then only if the second call sign is used by a different operator.
D. There is no specified minimum terrestrial distance for contacts, but all communications must be copied over the moonbounce path, regardless of how strong (or weak) a nearby station's terrestrial signal may be.

7) Reporting: Entries must be postmarked no later than 30 days after the contest and must include complete log data. Your summary sheet should show a band-by-band breakdown of QSOs and multipliers, and include details of your station setup and a photo. Mail entries to ARRL Contests, 225 Main Street, Newington, CT 06111.

8) Awards: Certificates will be issued to the top five stations worldwide in each of the entry categories: single operator, multiband; single operator, single band (separate awards for each band); and multioperator. Additional awards will be issued where significant achievement or competition is evident. In addition, each station that successfully completes at least one EME contact during the contest period will receive a certificate commemorating that achievement.

9) Disqualification: See the Contest Disqualification Criteria. These criteria are published annually in The ARRL Contest Yearbook, on the ARRLWeb page (http://www.arrl.org/contests/ccdq97.html#disqualification), and were last published in
QST in the August 1995 issue (page 118).

TWO VERSIONS OF FCC FORM 159 CONFUSE FILERS

With no fanfare, the FCC issued a new Form 159, Remittance Advice, in July that's somewhat different from the earlier version of the form issued in February. As of September 15, 1997, the FCC requires vanity call sign applicants to file a Form 159 with their applications no matter the method of payment. The FCC still was shipping the old Form 159 as of mid-summer, despite the revision.

While the two forms require essentially the same information, some item numbers on the new form--available via the FCC Web form-page site--are different from those we reported last week (see The ARRL Letter, Vol. 16, No 36). For example, applicants enter the Payment Type Code (which is "WAVR") in Item 20A on the new version and Items 14A and 14B on the old version of Form 159. Under Item 21A on the new form, applicants filing only one application may write "1" or simply ignore the box.

The Fee Due, entered in Box 22A, rose to $50 for the ten-year license term as of September 15, 1997. Hams can ignore Items 23A and 24A. Under Item 25, Payer TIN, and Item 26, Applicant TIN, applicants should supply the appropriate Social Security number(s). The new Form 159 contains a Section F for Credit Card Payment Information. Applicants must print their name and sign Form 159.

MORE ON NEW FORM 159

ARRL/VEC Manager Bart Jahnke, W9JJ, offers some additional advice on how to file a vanity call sign application, Form 619V, using the newly revised Form 159, Remittance Advice (dated July 1997). Form 159 must accompany all vanity call sign applications, no matter the method of payment.

On Form 159, Item 1, enter the post office box (POB) number that you'll be sending your payment to. If you're filing a paper Form 610V and sending it through the mail with your payment, Item 1 should read 358924. If you're filing electronically and mailing a payment for your electronically filed Form 610V, Item 1 should read 358994.

When using a paper Form 610V and filing by mail, you must include a Form 159 plus a copy of your current Amateur Radio license. The address is FCC, Amateur Vanity, POB 358924, Pittsburgh PA 15251-5924 (so, Item 1 on Form 159 in this case would be 358924, the same as the box number).

To apply electronically and sending Form 159 for your payment by mail, the address is FCC, Amateur Vanity, POB 358994, Pittsburgh PA 15251-5994 (so, Item 1 on Form 159 in this case would be 358994, the same as the box number).

Item 19A should be the applicant's present call sign.

FCC ISSUES GATE 3 CALL SIGNS!

Get ready to remember another batch of new call signs. Six weeks to the day after the opening of Gate 3, the FCC began processing vanity call sign applications. FCC personnel in Gettysburg, Pennsylvania, had spent much of the intervening time clearing out a backlog of vanity applications filed prior to the Gate 3 opening and matching up payments with electronic applications. On Wednesday, September 17, the FCC issued some 500 to 600 vanity call signs to those who had filed applications on August 6, the opening day.

Applicants can check for new call signs at http://www.arrl.org/fcc/fccld.html or by using one of the other popular call sign databases.

Judging from the call signs turning up on the FCC database, some Advanced class hams took advantage of Gate 3 to obtain Group C call signs where the suffix comprised either a first name (we spotted a Joe, a Don, a Ken, a Bob and a Gay, for example) or a set of initials. Perhaps apropos of his QTH, Gene Uliasz of Gun Barrel City, Texas, used Gate 3 to turn KC4WA into K5TNT. Formerly KF6CG, Georgia A. Lawrence of Manhattan Beach, California, obtained K6GAL. Other applicants obtained new Group B call signs, sometimes trading one 2x2 in for another. For example, Karl Mortensen of Wakefield, Rhode Island, swapped KE1FK for KA1RL. Still others went for the snappy suffix. Charles Pharis of Kagel Cyn, California, turned in KK6NE for KA6USA. Michael Amaral of Walpole, Massachusetts, gave up W1IDP to obtain WA1AW. Along the same lines, Michael Esposito of Germantown, Tennessee, swapped WA2VXV for WA2AW. Yvonne Lane of Kingwood, Texas, gave up KF5MY for W5XYL.

A few, like West Gulf Director Jim Haynie, just shortened the prefix. Haynie went from WB5JBP to W5JBP. Others went for one appropriate for their QTH. Teriann Miner of Palmer, Alaska, turned in her lower-48 call sign, KG0OY, for KL7AT.

The Iowa DX and Contest Club got WI0WA.

In all, it appears that the FCC received more than 1000 vanity call sign applications on August 6. Because earlier gates remain open, it's impossible to get an accurate count of applications filed solely under Gate 3, however. The FCC still has not indicated when it plans to open Gate 4, which will make the vanity call sign program available to General, Tech Plus, Technician and Novice licensees.

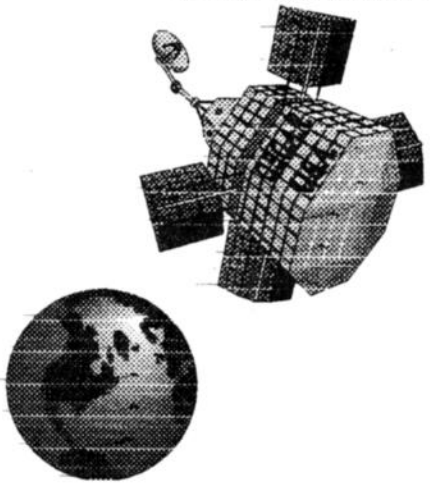
FCC "WIPs" VANITY APPLICANT OVER MISSING SPACE

Rick McMillion, K6SIX (ex-WB7UGZ), of Winton, California, found out the hard way that the FCC takes its spaces seriously. Back on August 6, McMillion was among the hundreds of hams

who filed under vanity Gate 3 for a new call sign. Six weeks later, when the FCC finally issued a big chunk of new call signs to Gate 3 first-day applicants, McMillion was dismayed that his was not among them. But none of the call signs he'd requested had been issued to anyone else, either. Obviously, his application had arrived in that twilight zone Gettysburg calls WIPs, for "work in process."

After waiting another week, McMillion says he just couldn't stand the suspense. "I had already received my canceled check back from the FCC, so I knew they had received it," he said. It wasn't until he called the FCC's toll-free number (888-225-5322 or 888-CALL-FCC) that he found out that in the world of the FCC, sometimes nothing is something. "The person told me that the FCC database and my license had my name listed as "Mc Million" [with a space], and my vanity application had "McMillion" [without a space]. Because of this, the FCC did not process his application because the computer showed that his last name on the application and his last name in the FCC database did not agree. "I could not believe what I was hearing," said McMillion, who's never spelled his last name with a space between the "Mc" and the "Million" [although this is how the FCC database handles such names -- Ed]. The FCC told him there was nothing he could do about the "misspelling," but McMillion had other plans. He fired off e-mail messages to FCC Commissioner Rachelle Chong and to John Johnston in the FCC's Wireless Telecommunications Bureau.

McMillion wasn't expecting much, but within a day, he got a reply from Johnston saying he'd check with Gettysburg. An hour later, he heard from Larry Weikert at Gettysburg stating that there were "some editing problems with Gate 3," and that McMillion's new call sign would be among the first issued when the problems were resolved. True to his word, Weikert messaged McMillion the next day to alert him that he'd just been granted K6SIX.
McMillion says he's impressed. "It's refreshing to know that one person can get a problem resolved with the FCC in a very fast efficient manner." He says he hopes his experience helped out a few others who might have run afoul of the "space" problem.



Indoor Antennas

Author: Michael Tracy, KC1SX (email: tis@arrl.org)

Lab Notes

Conducted by Steve Ford, WB8IMY, Assistant Technical Editor and the ARRL Laboratory Staff

Limited Space Antennas

Don't you wish you owned a monstrous tower with monoband Yagis for every amateur band from 40 meters through 70 cm? How about some sprawling 80- and 160-meter rhombics to round out the collection? Antenna farms like these exist only in the dreams of most hams. When it comes to antennas, the greatest obstacle isn't always cost, it's s-p-a-c-e! ARRL Laboratory Engineer Zack Lau, KH6CP/1, has spent years grappling with the challenge of operating in limited-space environments. In this month's column Zack applies his expertise to solve some difficult problems.--WB8IMY

Q: What is the smallest antenna I can buy that has lots of gain?

A: An optical telescope. A little 4-inch telescope has about 94 dBd of gain. An 8-inch telescope has 100 dBd of gain.

Q: I'm serious! I was thinking about the HF bands--something to put in my apartment. How much gain can I expect?

A: When squeezed into small apartments, most antennas will have no more than the same maximum gain as a dipole--0 dBd--less any losses. Losses can be relatively low in wood-frame buildings, and very high in concrete and steel structures. I've also heard bad things about stucco and wire mesh!

Q: How can I determine losses?

A: Try an antenna and see if it works! No kidding. It's sort of like measuring the loss of a windowpane by looking through it. There are usually too many factors involved to evaluate indoor antennas with theoretical models. It's quicker and less difficult to optimize indoor HF antennas empirically through trial and error.

Q: If I run 1500 watts to an indoor dipole, won't the fields around the antenna be awfully strong?

A: That's an understatement! (How's your fire and medical insurance?) I recommend using low power with indoor antennas. In fact, I suggest 5 watts output, although some folks run as much as 100 watts. While studies haven't conclusively linked low-level RF exposure to health problems, it's prudent to limit exposure if you can. If you're concerned about RF in your home, check the safety chapter of the ARRL Handbook.

Q: But if I run low power to an indoor antenna, how can I compete with stations running 1500 watts to huge outdoor antennas?

A: You can't. However, you can have lots of fun with a modest setup. One of the challenges of radio is seeing what you can do with what you have. When you erect gigantic antennas and produce huge amounts of RF, you expect to work any station you want--and become gravely disappointed when you don't! This is hardly the best formula for enjoying Amateur Radio.

Q: Okay. I decided to try it your way. I set up a 20-meter dipole in the attic of my apartment building and carefully measured the wire lengths. Even so, the best SWR I can get is 4 to 1. What am I doing wrong?

A: Your antenna is probably being detuned by nearby objects. You could either vary the length of the antenna, or use an antenna tuner to reduce the SWR at the transmitter. A tuner makes a lot of sense if you can afford it. In many cases you'll be able to operate on several bands with the same antenna--even with a high SWR on the feed line.

On the downside, operating with a high SWR can result in considerable feed-line loss. When there is a mismatch at the antenna, a portion of the transmitted RF energy is reflected rather than radiated. This reflected RF travels back and fourth many times between the antenna and the antenna tuner. The higher the SWR, the more trips are required to get rid of it--either in the form of heat in the feed line or radiation at the antenna. In good-quality feed line, many trips are possible before any loss is noticeable. By contrast, a poor feed line may dissipate most of the energy in a single trip!

Q: If the RF energy is making all those trips up and down the coax, won't my signal become distorted at the receiving end due to the delays?

A: You're forgetting how fast radio waves travel. For example, a radio wave zips through 16 feet of RG-213 coax in 49 nanoseconds. Even if it made 100 trips before finally being radiated, that's a delay of only 4.9 microseconds. The delay distortion that occurs is too small for anyone on the receiving end to detect. ATV (fast scan television) enthusiasts have some cause for concern though. Delayed ATV signals appear as ghosts on TV screens.

Q: You were right about adjusting the length of my dipole. All it took was a little trimming and the SWR came right down. I'm running about 100 feet of coax to the antenna. I don't really need that much feed line, but I'm too lazy to cut it. Although the antenna tuner tunes easily, I get lousy signal reports. Is the tuner affecting my signal?

A: Not likely. The problem isn't the antenna tuner--it's your 100 feet of coax! An antenna tuner isn't a miracle worker. Putting it very simply, a tuner is a device that couples RF to the antenna system and reflects reflected power back to the antenna. It functions as an extension of the output tuning network in your transceiver.
In your case, you're wasting a great deal of power heating 100 feet of coax with precious little radiated at the antenna! You'll never know this by the behavior of your antenna tuner, however. It happily matches your transceiver to this RF heating system and you're left wondering why you get such terrible signal reports. In this instance, a low SWR indication at your tuner doesn't add up to a terrific signal.

Q: An antenna tuner is a lot of money for my low-budget station. Are there cheaper alternatives?

A: Building your own tuner is an economical alternative. Tuner circuits can be found in almost any edition of the ARRL Handbook and in many other Amateur Radio publications. Parts can usually be found at most hamfests and at dealers who specialize in surplus equipment and components. Construction of an antenna tuning unit is an easy first project for the novice builder since layout and construction methods are simple.
The cheapest antenna tuner for the higher HF bands can be made from two quarter-wavelength pieces of coax and three

inductors made of #14 wire (see Fig 1 description). While I've played with this system in the lab, I haven't actually used it on the air since it's physically large on any band below 12 meters. (The system is similar to that used for microwave work. By placing three screws a quarter wavelength apart in a waveguide, you can match just about anything at a single frequency.) The losses might be a little higher than those you'll find in a conventional antenna tuner. The typical quality factor (Q) for coils is a tenth that of decent capacitors, but should still be acceptable if good coax such as RG-213 is used at 100 watts or less.

Q: When I shortened my coax, my carefully adjusted antenna went from a 1:1 to a 2:1 SWR. What happened?

A: The outside shield of the coax was functioning as part of the antenna. By shortening it, you effectively changed the antenna! You need too decouple the feed line from the antenna. If possible, bring the coax away from your dipole at a 90 degree angle. If the coax is running parallel to your antenna, RF coupling is likely to occur. In addition, try placing a balun in the feed line at the antenna. You'll see a number of baluns advertised in QST. Baluns decouple the feed line from the antenna but, like antenna tuners, they aren't cure-alls. You may need to experiment a bit to achieve maximum feed-line decoupling. (Try some ferrite beads on the coax, for example.)

Q: Why don't they sell VHF/UHF antenna tuners?

A: They're available, but the market is awfully small since most VHF/UHF antennas are designed to present good loads to 50-OHM feed lines. Also, tuners usually give poor results at VHF/UHF. Operating at VHF/UHF with a high SWR almost always results in horrendous feed-line loss. Using an antenna tuner won't solve the problem, and manufacturers aren't inclined to sell products that don't provide much benefit. However, if you must have a 6-meter antenna tuner, it's possible to modify an existing HF unit by substituting smaller coils and capacitors.

Q: Does it matter which wire size I use for my antennas?

A: If you want to comply with the National Electrical code, yes. It species #14 hard-drawn copper wire for lengths under 150 feet. To make antennas nearly invisible, however, amateurs have successfully used wire as fine as #32 with monofilament fishing line as supports and insulators.

Q: Since my whole antenna system is indoors, do I really have to spend the extra money for high-quality connectors?

A: Probably not. Apartment-dwelling hams have been known to use clip-lead connectors with excellent results on HF--as long as the clip leads are reliable. I've seen a lot of shoddy ones with poorly crimped connections.

Q: How about a small transmitting loop? Is it true that such an antenna will work as well as a full-size dipole?

A: We'll it's only comparable to a full-size antenna in a similar location. If I shielded both of them within a house or apartment, I wouldn't expect either to work all that well. Loops can be quite efficient if their losses are kept to a minimum through the use of thick tubing for the radiators and low-loss capacitors for the matching networks (see Nov. 1994 QST for a good home-brew capacitor design). Low-loss variable capacitors are often expensive, though. Even if money isn't a problem, small loop antennas aren't practical at 80 and 160 meters where the bandwidth of an efficient loop can become too narrow to pass an SSB signal!

Q: Is there an antenna that offers high angles of radiation on 80 and 40 meters and low angles on the higher bands for DX work?

A: An antenna that meets this requirement is the full-wave horizontal loop. Unfortunately, an 80-meter loop is about 70 feet on a side, by no means a small antenna. If you only operate on 40 through 10 meters, a 40-meter loop may be feasible depending on the size of your dwelling. Or, you could use a vertical loop for the higher bands and a short horizontal dipole and an antenna tuner for the lower bands. An antenna popular among novice hams in New Zealand is a loop of wire wrapped around the house! I haven't tried it, but it would make a pretty invisible antenna, especially if you put it up just prior to painting your home.

Q: I'm on the 10th floor of an apartment building. How do I get a ground?

A: Are you sure you need one? (I can't think of any satellite stations that are grounded to the earth!) If you absolutely must have a ground because of stray-RF problems, try adding a few quarter wave resonant radials, or a single tunable radial (commercial radial tuners are known as "artificial grounds").

However, this approach can backfire. The counterpoise wires might also act as antennas, radiating even more RF into your apartment. Even wide copper straps are bound to be good radiators unless they're placed near lossy materials, such as concrete. If you have a concrete floor or patio, you can use 15 to 20 square feet of sheet metal placed directly on top of the concrete. This creates a lossy ground that gets rid of stray RF by converting it to heat.

Q: Can I use the sheet-metal ground for my long wire antenna?

A: You could, but much of your power may end up as heat. You're better off with balanced antennas, though people have effectively used long wires in limited-space environments (high-rise buildings in particular). When working against any poor ground, much of your signal is lost as heat. Even so, the remainder that is radiated may be adequate if the wire is 100 feet up!

Q: I just heard a DX station using a trap vertical at a beach-front location. His signal was terrific! I used a vertical too, but my signal wasn't nearly as good on his end. Why?

A: The quality of the ground determines how well a vertical performs at low angles of radiation--the lower the angle the better for DX! Sand saturated by salt water is a terrific ground plane for verticals.

The ideal ground plane for HF verticals should extend for hundreds, if not thousands, of feet around the antenna. The DX station you heard is operating in a near-ideal environment (in more ways than one!). Some hams try placing copper screens under their verticals, but it doesn't offer much improvement. Unless you can move to a tropical island or seaside resort, you can only work with what you have available.

Q: The trap vertical I bought seems to work, but I can't adjust the SWR to 1:1 on all bands. Should I be concerned?

A: No, Many designers find it a challenge to build an efficient antenna that exhibits an SWR under 2:1 on all HF bands. The easiest way to reduce the SWR is by increasing the losses, either by putting a resistor or using lossy matching techniques. The classic double-bazooka antenna uses the latter--the coaxial stubs increase the bandwidth by making the antenna convert RF into heat! The acceptability of these techniques is subject to much debate and we don't have space to cover it here. If I were you, I'd use an antenna tuner and stop worrying about the SWR.

Q: I'd prefer to use a multiband trap antenna so I won't need an antenna tuner. What are the disadvantages of doing so?

A: Traps generally reduce the bandwidth of the antenna (i.e., you might need a tuner anyway) as well as limit the power-handling capability. In most antenna designs, they're the weak link in the system. For multiband HF operating, I prefer an antenna with a minimum of weak links--no traps or baluns. This allows experimentation with an antenna tuner to determine which bands the antenna will work on.

Try a coax-fed dipole and "force feed" it via an antenna tuner. Make the antenna as long as practical. Use good-quality coax and keep it as short as you can. You may even want to try feeding your dipole with 450-ohm ladder line since, compared to coax, open-wire feed line has extremely low loss at HF. The SWR may be quite high on some bands, but don't let it bother you. Use your tuner to couple the RF to the antenna system and most of it will be radiated.

FOOTNOTE #1 R. Healy, "Feeding Dipole Antennas," QST, Jul. 1991, pp. 22-24.

Transcript of the lost "Star Trek" episode:

"Windows of Vulnerability":

SCENE: THE BRIDGE OF THE STARSHIP "ENTERPRISE"

PICARD: "Mr. LaForge, have you had any success with your attempts at finding a weakness in the Borg? And Mr. Data, have you been able to access their command pathways?"

LAFORGE: "Yes, Captain. In fact, we found the answer by searching through our archives on late Twentieth-century computing technology."

|LaForge presses a key, and a logo appears on the computer screen.|

|Riker looks puzzled.|

RIKER: "What the hell is a 'Microsoft'???"

|Data turns to answer.|

DATA: "Allow me to explain. We will send this program, for some reason called 'Windows', through the Borg command pathways. Once inside their root command unit, it will begin consuming system resources at an unstoppable rate."

PICARD: "But the Borg have the ability to adapt. Won't they alter their processing systems to increase their storage capacity?"

DATA: "Yes, Captain. But when 'Windows' detects this, it creates a new version of itself known as an 'upgrade'. The use of resources increases exponentially with each iteration. The

Borg will not be able to adapt quickly enough. Eventually all of their processing ability will be taken over and none will be available for their normal operational functions."

PICARD: "Excellent work. This is even better than that 'unsolvable geometric shape' idea."

[Two hours later.....]

DATA: "Captain, We have successfully installed the 'Windows' in the command unit and, as expected, it immediately consumed 85% of all resources. We however have not received any confirmation of the expected 'upgrade'."

LAFORGE: "Our scanners have picked up an increase in Borg storage and CPU capacity to compensate, but we still have no indication of an 'upgrade' to compensate for their increase."

PICARD: "Data, scan the history banks again and determine if there is something we have missed."

DATA: "Sir, I believe there is a reason for the failure in the 'upgrade'. Apparently the Borg have circumvented that part of the plan by not sending in their registration cards.

RIKER: "Captain, we have no choice. Requesting permission to begin emergency escape sequence 3F....."

LAFORGE: [excited] "Wait! Captain, I just detected their CPU capacity has suddenly dropped to 0% !"

PICARD: "Data, what do your scanners show?"

DATA: "Apparently the Borg have found the internal 'Windows' module named 'Solitaire'. It has used up all the CPU capacity."

PICARD: "Let's wait and see how long this 'solitaire' can reduce their functionality."

[Two Hours Pass.....]

RIKER: "Geordi, what's the status on the Borg?"

LAFORGE: "As expected the Borg are attempting to re-engineer to compensate for increased CPU and storage demands, but each time they successfully increase resources I have setup our closest deep space monitor beacon to transmit more 'windows' modules from something called the 'Microsoft fun-pack'.

PICARD: "How much time will that buy us ?"

DATA: "Current Borg solution rates allow me to predicate an interest time span of 6 more hours."

LAFORGE: "Captain, another vessel has entered our sector."

PICARD: "Identify."

DATA: "It appears to have markings very similar to the 'Microsoft' logo"

[Over the speakers]

"THIS IS ADMIRAL BILL GATES, OF THE MICROSOFT FLAGSHIP 'MONOPOLY.'
WE HAVE POSITIVE CONFIRMATION OF UNREGISTERED SOFTWARE IN THIS SECTOR. SURRENDER ALL ASSETS AND WE CAN AVOID ANY TROUBLE. YOU HAVE 10 SECONDS"

DATA: "The alien ship has just opened its forward hatches and released thousands of humanoid shaped objects."

PICARD: "Magnify forward viewer on the alien craft"

RIKER: "Good God captain! Those are humans floating straight toward the Borg ship with no life support suits! How can they survive the tortures of deep space ?!"

DATA: "I don't believe that those are humans, sir. If you will look closer, I believe you will see that they are carrying doe-skin leather briefcases and wearing Armani suits - traditional trademarks of..... "

PICARD AND RIKER [horrified]: "Lawyers !!"

LAFORGE: "It can't be. All the Lawyers were rounded up and sent hurtling into the sun in 2017 during the Great Awakening."

DATA: "True, but apparently some must have survived."

RIKER: "They have surrounded the Borg ship and are covering it with all types of papers."

DATA: "I believe that is known in ancient vernacular as 'red tape'. It often proves fatal."

RIKER: "They're tearing the Borg to pieces !"

PICARD: "Turn off the monitors. I can't stand to watch - not even the Borg deserve that."

UNITED STATES POSTAL SERVICE™

Statement of Ownership, Management, and Circulation

(Required by 39 USC 3685)

1. Publication Title	2. Publication Number	3. Filing Date
THE MICROVOLT		9-29-97
4. Issue Frequency	**5. Number of Issues Published Annually**	**6. Annual Subscription Price**
Monthly except August	11	$6.00

7. Complete Mailing Address of Known Office of Publication *(Not printer)* *(Street, city, county, state, and ZIP+4)*
632 University Street Salt Lake City, Utah 84102
Salt Lake County

Contact Person: Maurine Strektenfinger
Telephone: 801-254-1531

8. Complete Mailing Address of Headquarters or General Business Office of Publisher *(Not printer)*
Same as above

9. Full Names and Complete Mailing Addresses of Publisher, Editor, and Managing Editor *(Do not leave blank)*

Publisher *(Name and complete mailing address)*
Utah Amateur Radio Club
632 University St. S.L.C. Utah 84102

Editor *(Name and complete mailing address)*
Cokie Eddy
147 B/C E. 4th Ave Dugway, Utah 84022

Managing Editor *(Name and complete mailing address)*
Maurine Strektenfinger
2372 West 11800 South Riverton, Utah 84065

10. Owner *(Do not leave blank. If the publication is owned by a corporation, give the name and address of the corporation immediately followed by the names and addresses of all stockholders owning or holding 1 percent or more of the total amount of stock. If not owned by a corporation, give the names and addresses of the individual owners. If owned by a partnership or other unincorporated firm, give its name and address as well as those of each individual owner. If the publication is published by a nonprofit organization, give its name and address.)*

Full Name	Complete Mailing Address
Utah Amateur Radio Club	632 University St. SLC, Utah 84102

11. Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages, or Other Securities. If none, check box → ☒ None

Full Name	Complete Mailing Address

12. Tax Status *(For completion by nonprofit organizations authorized to mail at special rates)* *(Check one)*
The purpose, function, and nonprofit status of this organization and the exempt status for federal income tax purposes:
☒ Has Not Changed During Preceding 12 Months
☐ Has Changed During Preceding 12 Months *(Publisher must submit explanation of change with this statement)*

13. Publication Title	14. Issue Date for Circulation Data Below
The MicRovoLt	October, 1997

15. Extent and Nature of Circulation		Average No. Copies Each Issue During Preceding 12 Months	Actual No. Copies of Single Published Nearest to Filing
a. Total Number of Copies (Net press run)		655	616
b. Paid and/or Requested Circulation	(1) Sales Through Dealers and Carriers, Street Vendors, and Counter Sales (Not mailed)	0	0
	(2) Paid or Requested Mail Subscriptions (Include advertiser's proof copies and exchange copies)	587	563
c. Total Paid and/or Requested Circulation (Sum of 15b(1) and 15b(2))	▶	587	563
d. Free Distribution by Mail (Samples, complimentary, and other free)		2	0
e. Free Distribution Outside the Mail (Carriers or other means)		16	0
f. Total Free Distribution (Sum of 15d and 15e)	▶	18	0
g. Total Distribution (Sum of 15c and 15f)	▶	605	563
h. Copies not Distributed	(1) Office Use, Leftovers, Spoiled	50	53
	(2) Returns from News Agents	0	0
i. Total (Sum of 15g, 15h(1), and 15h(2))	▶	655	616
Percent Paid and/or Requested Circulation (15c / 15g x 100)	98%		

16. Publication of Statement of Ownership
☒ Publication required. Will be printed in the NOV. 1997 issue of this publication.
☐ Publication not required.

17. Signature and Title of Editor, Publisher, Business Manager, or Owner	Date
Maurine Strketenfinger	Sept 28, 199

I certify that all information furnished on this form is true and complete. I understand that anyone who furnishes false or misleading information on this form or who omits material or information requested on the form may be subject to criminal sanctions (including fines and imprisonment) and/or civil sanctions (including multiple damages and civil penalties).

Instructions to Publishers

1. Complete and file one copy of this form with your postmaster annually on or before October 1. Keep a copy of the completed form for your records.
2. In cases where the stockholder or security holder is a trustee, include in items 10 and 11 the name of the person or corporation for whom the trustee is acting. Also include the names and addresses of individuals who are stockholders who own or hold 1 percent or more of the total amount of bonds, mortgages, or other securities of the publishing corporation. In item 11, if none, check the box. Use blank sheets if more space is required.
3. Be sure to furnish all circulation information called for in item 15. Free circulation must be shown in items 15d, e, and f.
4. If the publication had second-class authorization as a general or requester publication, this Statement of Ownership, Management, and Circulation must be published; it must be printed in any issue in October or, if the publication is not published during October, the first issue printed after October.
5. In item 16, indicate the date of the issue in which this Statement of Ownership will be published.
6. Item 17 must be signed.

Failure to file or publish a statement of ownership may lead to suspension of second-class authorization.