



DX MONITOR

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 THE INTERNATIONAL RADIO CLUB OF AMERICA
 WHOLE NO 389 NOVEMBER 1, 1975

VOLUME 13 NO. 6
 DX CALENDAR DX CALENDAR
 DX CALENDAR

*** NEW MEMBERS

ELT	
Both Mon., Every	0015-0130 WBMD- 750 Baltimore, MD 1kw
NRC Mon. 11-10-75	0100-0130 WSNW-1150 Seneca, SC 1kw
NRC	0130-0200 WAGL-1560 Lancaster, SC 10kw
NRC	0200-0230 WEAG-1470 Alcoa, TN 1kw
Both	0215-0245 WLYC-1050 Williamsport, PA 1kw
NNRC	0400-0500 WJDB- 630 Thomasville, AL 1kw
NRC Thu. 11-13-75	0400-0700 KSMM-1530 Shakopee, MN 1/2kw
NNRC Mon. 11-17-75	0000-0100 WSAU- 550 Wausau, WI 5kw
NRC	0200-0230 WVOG- 600 New Orleans, LA 1kw
NNRC	0300-0400 WNDE-1260 Indianapolis, IN 5kw
NRC	0330-0400 WEXY-1520 Oakland Park, FL 1kw
NNRC Tue. 11-18-75	0130-0300 WIBC-1070 Indianapolis, IN 5kw
NRC Mon. 11-24-75	0100-0400 KYSM-1230 Mankato, MN 1/4
NRC	0200-0230 KSIR-1470 Estes Park, CO 1/2kw
NRC	0300-0330 WNMT-1520 Garden City, GA 1kw
IRCA	0300-0330 KYME- 740 Boise, ID 1/2kw
Both Fri. 11-28-75	0000- ? WHLW-1170 Lakewood, NJ 5kw
NRC Mon. 12- 1-75	0330-0400 WTBJ-1090 Monticello, FL 1kw
Both Sun. 12- 7-75	0000-0300 WTHD- 930 Milford, DE 1/2kw
Both Mon. 12- 8-75	0115- ? WLLL- 930 Lynchburg, VA 5kw
NRC	0230-0300 WMTY-1090 Greenwood, SC 1kw
NRC	0300-0330 WNRI-1380 Woonsocket, RI 1kw
NNRC Mon. 12-15-75	0300-0315 WKLF- 980 Clanton, AL 1kw
NNRC	0400-0500 WSOY-1340 Decatur, IL 1/4
NNRC Mon. 12-22-75	0400-0500 WENN-1320 Birmingham, AL 5kw
NNRC Mon. 12-29-75	0100-0200 WGIL-1400 Galesburg, IL 1/4
NNRC	0400-0500 WMAG- 850 Forest, MS 1/2kw
NNRC Tue. 12-30-75	0400-0500 WIRE-1430 Indianapolis, IN 5kw
NNRC Mon. 1- 5-76	0100-0200 WBSM-1420 New Bedford, MS 5kw
IRCA Mon. 1-19-76	0300-0330 WSUB- 980 Groton, CT 1kw
NNRC Mon. 2- 9-76	0200-0300 WBRW-1170 Somerville, NJ 1/2kw
NNRC Mon. 2-23-76	0200-0300 WCVS-1450 Springfield, IL 1/4

"Both" is IRCA/NRC

WSNW-1150 daytime only, details unknown. Send reports to Herb Hosea, CE, P.O. Box 793, Seneca, SC 29678. Arranged by Neil G. Zank.

WAGL-1560 daytime only, details unknown. Reports to Len Phillips, Mgr., P.O. Box 28, Lancaster, SC 29720. Arranged by Neil G. Zank.

WEAG-1470 daytime only, will have march music and test tone. Ted Teffeteller, CE, P.O. Box 127, Alcoa, TN 37701. Arranged by Skip Dabelstein.

WLYC-1050 daytime only, will test with tone, music, and voice IDs. Reports to John Ellis, P.O. Box 389, Williamsport, PA 17701. Arranged by James Hopkins.

WJDB-630 daytime only, no program details. Reports to Gene Vinson, CE, P.O. Box 757, Thomasville, AL 36784. Arranged by Kenneth Van Tassell.

KSMM-1530 daytime only, Proof-of-Performance Test. William Merrill, CE, P.O. Box 66, Shakopee, MN 55379. Arranged by Neil G. Zank.

SCADS MEETING - ALL DXERS WELCOME

Date: Saturday, November 29, 1975
 Time: 12 noon to evening
 Location: Home of Randy Seaver
 1154 Via Trieste
 Chula Vista, CA 92011
 (714) 422-3397

Registration fee: \$2.00 per person - includes spaghetti dinner at 5 PM, drinks (soft drinks and beer), and munchies, door prize.

Directions: Take I-805 through San Diego into Chula Vista. Take "L Street West" offramp. Turn left (south) on Nacion Ave. (1st light from offramp). Turn right on E. Naples (one-half mile from L St.). First left is Via Trieste.

Bethel Middle School-Kemp, 1 School St., Bethel, CT 06801
 M.B. Roach, 3 Fowlds Ave., Sandringham, Auckland 3, NEW ZEALAND (rejoin)

Karl N. Raymond, P.O. Box 947, Lawndale, CA 90260
 Chris D. Wunderlin, 1022 Cady St., Maumee, OH 43537
 Bruce Goldsen, 27 Spruce Hill Road, Georgetown, CT 06829

Address Change:

Gary Parton, P.O. Box 7495, Burbank, CA 91510

Renewals:

Artie Bigley, Randy L. Markwell, Rick Heald, Jim Albrecht, William B. Feidt

Brian Elder, San Francisco: Bulletin returned-no forwarding address

BROADCASTING

INFORMATION

(as compiled by Mike Worst)

	Day	Nite		
new 850	1kw		Statesboro, Ga.	requests WPTB
WFAB 990	5kw	5kw	Miami, Fla.	renewal denied. To operate to 12-17-75.
KAWA 1010	10kw		Waco-Marlin, Tex.	requests KKIK
KIKS 1310	500w		Sulphur, La.	granted KEZM
WCRB 1330	5kw	5kw	Waltham, Mass.	" WHET
WUSJ 1340	1kw	250w	Lockport, N.Y.	" WLVL
new 1340	1kw	250w	Manti, Utah	requests KMTI
new 1410	1kw		McRae, Ga.	granted WDAX
KFAM 1450	1kw	250w	St. Cloud, Minn.	" KCLD
new 1530	1kw	250w-CH		
WGNL 1550	1kw		McConnellsburg, Pa.	requests WVFC
			Greenville, N.C.	" WBZQ

From the October 20, 1975 issue of Broadcasting.

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eastern dx roundup

Editor: Mike Mitock,
Box 533
Lorain, OH 44052

DEADLINES: Monday's ALL TIMES ELT

- * * * * *
- 570 WAAX AL, GADSDEN was in well w/c&w 10/6 0302-05. "Big WAAX Country". S-1 WFAA QRM. Probably this, not KLAC, c&w I hrd 9/15. (ELK-OH)
 - 600 CFCH ON, NORTH BAY 9/22 2230-2300. Weak u/local CFCH, no sign of usual WICC or Cuban.. Half hour late evening wrap up of nx, wx, (Temp was given in "C", not "F", tipping me off that this was a Canadian stn and not WICC) and sports. ID 2300 then into tape-delayed CBC pgm "As It Happens". Unexpected as I was just listening to Expos BB on CFCH, but began to concentrate on CFCH u/CFCH when I hrd wx and knew it was not WICC. (RCM-PQ)
 - 760 WJR MI, DETROIT 10/6 was off part of AM, but back to RS by 0430 on check of freq. (RA-MA)
 - 810 KCMO MO, KANSAS CITY 9/26 weak clear sig u/WGY talk show w/rr mx to ID 2030 thru WGY pause. Another case of unexpected DX as I was listening to WGY talk show about the beefalo! (RCM-PQ)
 - 840 WRYM CT, NEW BRITAIN 10/3 1756-1815. Fady sig, very poor at first, much better as LSS came here, some CKVL splash. Polka mx exclusively w/a couple of spots or PSAs every 3-4 minutes. S/off 1815 ment. "Rhyme Radio" nickname, and c&o by Hartford County Broadcasting. (RCM-PQ)
 - 860 CBH NS, HALIFAX 10/4 0515-0533. Fair-good sig at first, very poor by 0530 as past LSR in NS. Local NS programming, ADT TCs and mentions of Halifax, Dartmouth & NS 0515. Mx 'til 0520, then into historical events of the past that occurred on this date. More mx and talk, signal very poor by now. Then CJBC OC 0532 & ear splitting TT 1 kHz 0533. (RCM-PQ)
 - WOAY WV, OAK HILL 9/24 fair-good sig w/s/off 1929 thru nulled CJBC, some CKVL splash but not bad. Also hrd 9/29, same details. (RCM-PQ)
 - WGOM IN, MARION very strong on yet another ET 10/6 0202-05. Contemp mx. (ELK-OH)
 - 920 CJCH NS, HALIFAX 10/7 very good sig in auroral cx, ADT TC & ID 0440, ment of Fire Prevention Week. Rr mx..This stn has become an auroral cx regular here, and they are due East of me! (RCM-PQ)
 - 990 CBY NE, CORNER BROOK 10/4 Fair-good sig 0507, was not // 540 & 640 & 740 as others all w/"Nfld. Today" pgm. CBY was not carrying it as I hrd them ID as CBY and go into a mx selection which was not // others. Probably technical problems as I doubt that they would drop a CBC pgm in favor of their own. (RCM-PQ)
 - 1010 WCNL NH, NEWPORT 9/24 fair sig thru WINS/CFRB null w/brief s/off anmt 1859 then SSB. (RCM-PQ)
 - 1070 WSCP NY, SANDY CREEK-PULASKI 10/9 good sig w/s/off 1829 then vocal SSB. CBA nulled, CHOK QRM u/. O&o by Oswego-Jefferson B'casting Inc.(RCM-PQ)
 - 1230 WNOR VA, NORFOLK first new graveyard in awhile. 10/11 1915 w/rr & spots for Va. Beach.(GA-NC)
 - 1240 CJWA ON, WAWA noted on 10/6 w/contemp mx and promos for CJIC 0051-0100. Hvy unID TT QRM. (ELK-OH)
 - 1250 WEMP WI, MILWAUKEE 10/6 0350-0420. L&G on ET w/voice ID @ 0359, plenty of varying TT and some OC. (RA-MA)
 - 1260 WQWR NC, ASHEBORO 10/1 good sig. 1900 UPI Nx, on top of WWDC. (GA-NC)
 - 1290 WCCG CT, HARTFORD 10/5 fair-poor sig w/s/off u/WKNE & WNEF QRM 1814, no SSB hrd. Faded up at times w/parts of s/off anmt, not very readable sig. (RCM-PQ)
 - 1340 WOKE SC, CHARLESTON 10/7 0512-0537. Good sig, very readable w/long fades in o/channel, auroral cx. Several mentions of the pgm's name, "Carolina in the Morning". 0512-0515 wx for Charleston, also giving local tide info. ID 0521 between mx. 0526 into historical events for today's date. Fade away & gone t/out 0537. OM ancr w/very slow speech and drawl, often w/long pauses making me wonder if they had faded out. (RCM-PQ)
 - 1400 WRDO ME, AUGUSTA 10/5 noted here all morning again. WRDO has become the #1 pest on 1400 for me now. And to think I was once thrilled to hear them. (RCM-PQ)
 - 1410 WING OH, DAYTON squeaked around & between KQV & WHK (can they be taken out & shot? Hi) 10/8 at 0001 poorly w/metro Dayton nx & rr. (GA-NC)

- 1460 WMBA PA, AMBRIDGE on w/ET-mx 0220-25 on 10/13. Fairly good. (ELK-OH)
- WFDQ FL, JACKSONVILLE first time hrd since complex 3 station switch recently. Still soul mx 10/7 2344 & "WFDQ Entertainment News". (GA-NC)
- 1470 WRGA GA, ROME 9/30 fair 2245 w/Monitor "World Today" ID, "WRGA, Serving Northeast Georgia on 1470." (GA-NC)
- 1500 **** unID; 10/6 0314-0347 tune out. Tester w/non stop c&w w/some OC. Did not ID in this period. Looped west.....WDEN maybe???? (RA-MA)
- 1530 WTTI GA, DALTON also in well on another ET 10/13 0121-35. QRM from WCKY OC only. (ELK-OH)
- 1550 WNTN MA, NEWTON logged w/ET 10/6, 0114-0200. A real bomb. (ELK-OH)
- KGMO MO, CAPE GIRARDEAU on top of channel 10/13 w/ET-TT 0353-0403. (ELK-OH)
- 1590 WQQW CT, WATERBURY poor 10/8 0056 mixed in with WAKR. CBS News, followed by 0106 s/off. (GA-NC)
- WHFY NC, CLAYTON 10/7 very good sig in auroral cx, just tuned in time to hear last part of s/off anmt 1845, no SSB. (RCM-PQ)

PER THE LIST:

- 790 KGHM MT, BILLINGS 10/6 0245-0300 r/c-TT 1st MM. Fair good sig w/WTAR & WEAN both nulled poorly but TT and ID 0300 came thru nicely. (RCM-PQ)
- 1600 WTYM MA, EAST LONGMEADOW in well on FC (?) w/TT 10/13 0207-09. S-1 KATZ & WWRL-OC QRM. (ELK-OH)

FROM THE "DX CALENDAR":

- 740 WVCH PA, CHESTER 10/6 0110-0132. Test heard well after CBL s/off w/TT, E/listening mx & IDs that included mailing address. (RA-MA)
- 1250 WMTR NJ, MORRISTOWN 10/6 0201-0236. DX Test dominating freq. No sign of CHWO & WTAE until 0230 when WTAE also was on ET. Test had variety of IDs, TT, pop mx & mention of locations that listeners called from. (RA-MA)
- 1420 KBTN MO, NEOSHO 10/6 Test tried but not heard, no chance w/local WBSM ANING on MM as usual.(RA-MA)
- 1560 KQYX MO, JOPLIN 10/6 0140-0200. Test heard fairly well thru WQXR OC w/TT & SIDs approx. every minute. WQXR ID heard @ 0155. (RA-MA)

+ In easily on DX 10/6 0151-0200. Thru WQXR OC and other QRM. TT and freq IDs helped.(ELK-OH)

BROUGHT TO YOU THIS WEEK BY:

- (GA)-Gregg Allinson/919 N. Kerr Ave., Wilmington NC 28401/S38-C & Longwire
- (RA)-Ray Arruda/48 Woodlawn St., New Bedford MA 02744/SX-122 & SM-1
- (RCM)-Richard C. Mayhew/266 Dufferin Rd., Valleyfield PQ J6S 1Z7/ DX-150B; 4' loop & 4 Longwires
- (ELK)-Ed Krejny/6538 Belmeadow Dr., Middleburg Hgts., OH 44130/HQ-180 & loop.

First off, Congratulations to Ray Arruda & his XYL! Much happiness to you both!

Nice sized column this week! Looks like the most fantastic DX season since the biggie in 1963-64 is well under way. I've already dusted off the ole rx, and plan to do mucho dial twlstrng! All the Roundups have been showing some great DX lately, and DXWW's past 2 or 3 have put the old DX fever back into ye editor! Everyone DX, and report often....support ALL the columns with your DX! 73 'til next week!

WKWF, EST. 1945
Verification Card No. 435 Average Temperature 76° P. O. Box 1300
Key West, Florida

Thank You for Your Report of Reception of WKWF, dated April 7, 1974 8:10 AM E.S.T.

Our schedule for this time shows CORRECT. We are happy to verify Incorrect. We regret we cannot verify your report.

Remarks: Thank you for nice Rpt. For nice Rpt.

1600 KCs Quality Radio Since 1945 500 Watts

Sandy SST ACT Having trouble HPS, TEX and 200000
Chief Engineer

Central DX



Round up

EDITOR: Jim Pogue
P. O. Box 972
Lafayette, IN 47902

A TIP OF THE GORRA THIS WEEK TO:

- JDF - JAY FLORIAN, 300 East Main Street, Round Lake, IL 60073 (Panasonic RF-5000a, SM-2)
- KDF - KARL FORTH, 630 South Ardmore, Villa Park, IL (HQ-160, SM-2)
- JTP - Ye Humble Editor, (Zenith T-0, SM-2)

- 570 WWNC NC, ASHVILLE, 10/13, 0506, poor w/R&R mx, jingle, wx rpt, o/WFAA.
- 740 **WVCH** PA, CHESTER, 10/6, 0118-0151, fair-good o/KCBS w/MoR oldies, TT & IDs. (JDF-1st two)
- 850 WRAP VA, NORFOLK, 9/29, 0441, poor o/UnID & CKVL w/ID & Tx. (JDF)
- 850 WHDH MA, BOSTON, 9/29, 0400, fair o/UnID TTer w/Radio 85-Boston ID then nothing else. Testing or RS? (JDF)
- 860 WDMG GA, DOUGLAS, 10/13, 0512 good, all alone w/PSA, ID, ads & community calendar. (JDF)
- 940 WINZ FL, MIAMI, 10/13, 0235 fair o/UnID SS, w/News Radio 94 promo, wx, & NNIS nx. (JDF)
- 1120 KPNW OR, EUGENE, 9/29, 0408 poor all alone in noise, this presumed to be the one w/rlg px. (JDF)
- 1250**WMTR** NJ, MORRISTOWN, 10/6, 0217 fair-poor w/pop mx, IDs, phone call ments, occasional TT, usually u/WTAE ET & WREN. (JDF)
- 1300 WFBR MD, BALTIMORE, 10/13, 0244 fair w/sport results, PSA & ID u/WERE.
- 1370 WCOA FL, PENSACOLA, 10/12, 1939 good o/all w/MoR mx, ad for Pygmy VW (JDF last 2)
- 1380 KBWD TX, BROWNWOOD, 10/13 0101 weak w/s/off & SSB. (KDF)
- 1380 CKPC ONT., BRANTFORD, vry gd 10/20, 0143-0200+ w/pop mx, dtls on contest for trip to Barbados. (JTP)
- 1400 WGBG NC, GREENSBORO, 10/13, 0501 fair on top of GY w/SSB, s/on & nx. This was my 1000th station heard! FINALLY! (JDF) (Vry congrats Jay! - ED.)
- 1410 KDOX TX, MARSHALL, 1943, 10/18 fair w/Navy pgm, s/off and SSB. (KDF) (Is this close to the infamous city of Borger, Texas?)
- 1410 WUNI AL, MOBILE, 10/12, 1926 good o/all w/wx, jingle, then C&W mx. (JDF)
- 1450 KLWV IA, CEDAR RAPIDS, 9/29, 0201 poor o/GY w/ID 7 Nx. (JDF)
- 1450**WMBH** MO, JOPLIN, 9/22, 0246 fair thru WXXV w/TT & 1m IDs. (JDF)
- 1460 WPVL OH, PAINESVILLE, 10/18 0600 fair w/SSB & s/on. (KDF)
- 1460**WMBH** PA, AMBRIDGE, 10/13 0152 fair on ET w/rock & ID unn. (KDF)
- 1510**WJIC** NJ, SALEM, 9/29, 0259 poor w/code & voice IDs & end of test u/WLAC. (JDF)
- 1510 WJRC IL, JOLIET, 10/12 2000 w/s/off 45 min late. They did this last fall too.
- 1530 WJRL MS, CALHOUN CITY, 10/12 1931 weak u/WCKY w/s/off no SSB. (KDF above 2)
- 1530**WTTI** GA, DALTON, 10/13 0146 loud on ET/ID/pop mx. (KDF)
- 1550 WSAO MS, SENATOBIA, 10/12, 1925 fair, sports results, ads, o/KKJO & WAAY. (JDF)
- 1560 WAGC AL, CENTRE, 10/12, 1915 fair s/off after local nx, SSB hrd o/WDXR & WQXR. (JDF)
- 1560 WTNS OH, CONSHOCTON, 10/18 0559 good w/s/on. (KDF)

- 1580 KLOU LA, LAKE CHARLES, 10/12, 1923 poor w/soul mx, ads, ID. (JDF)
- 1580 WESY MS, LELAND, 10/12, 1929 fair o/QRM w/s/off & SSB. (JDF)
- 1580 KFDF AR, VAN BUREN, 10/12, 1943 fair o/all w/s/off & SSB. (JDF)
- 1580**KTUF** AZ, TEMPE, 10/13 0343 fair-good, C&W & promos, IDs as KNIX-KTUF. They cut off when KNIX had ads. Hrd agn @ 0414. o/UnID UPI. nx sta. (JDF)
- 1590 WWUN MS, JACKSON, 10/12, 1921 good w/WUN promos, C&W. All alone. (JDF)
- 1600 KNCB LA, VIVIAN, 10/12 1944 strong w/s/off & SSB unn. (KDF)

Once again, lotsa good stuff being heard out there in DX land. How about sending a report this way? Now that we are weekly again, my deadline will be the Thursday, a week and a half before masthead date. By the way, if you are one of the many who take advantage of the CPC tests, why not get involved and schedule a few tests yourself. Just contact CPC Chairman Rob Keeney for full details. See you in 7!

NANCY HARDY, Editor

2301 PACIFIC AVE.
ABERDEEN, WA 98520

western dx roundup

DEADLINE EACH SATURDAY

REPORTERS THIS ISSUE:

- (RLM) Randy Markwell-Box 81-Kittitas, WA 98934
- (bp) Bruce Portzer-7021 Sand Pt. Way NE #215-HQ-180A, SM-2 Seattle, WA 98115
- *****
- 560 unID 9/29MM 0226 MOR/lite rr u/KPQ/KSFO. Sounded automated. (bp-WA)
- 650 KORL HI, Honolulu 10/11 0617-0655 putting in a good signal o/WSM w/good ole rr. Came in almost every day last week, also received 10/13 0209-0221 w/super strong signal - couldn't even hear WSM. (RLM-WA)
- 760 WJR MI, Detroit returning to the air 0352 10/6, ann'd they had been off since "12:11". (bp-WA)
- 920 KSRM AK, Soldotna much wanted finally bagged w/hymns & ID 0330-0401 9/29 w/horrendous KIXI-910 slop. (bp-WA)
- 920 *WOKY* WI, Milwaukee began ET 0333 9/29, then Sandy Posey record. Noted weakly while waiting for KSRM ID but not IDed until 2 weeks later when I played back the tape & hrd the anmt. (bp-WA)
- 1020 KBCQ NM, Roswell 10/11 0715 1st time tried for it, gave wx for nation. Good signal. (RLM-WA)
- 1030 KCTA TX, Corpus Christi 10/11 0725 real good signal u/KTWO in Espanol w/nx. (RLM)
- 1250 KYAC WA, Seattle? 10/13 0308 not sure of location because of their juggling act. Rr, 1st time tried for, maybe AN. (RLM) (Definitely is Seattle, as they purchased a Seattle stn, namely KTW-NH)
- 1350 KRNT IA, Des Moines s/on after SSB 0458:30 10/6, good signal. (bp-WA)
- 1400 CKGR BC, Golden 9/29 0215 noted in mess w/ID for CKGR/CKXR-580/CKCR-1340. (bp)
- 1420 CKPT ON, Peterborough 9/29 0407 atop w/wx & ID, then rr. (bp-WA)
- 1420 CJVR SK, Melfort 10/15 0200 very poor w/s/off, QRM from CFUN-1410. (RLM-WA)
- 1440 unID Someone o/u KEWI/JOWF w/C&W 05350 0605 10/19. Ad for clothing store 0544 in the ----shopping ctr in or at ----Georgia. The word before GA & name of the shopping ctr sounded like the same but not sure if it was the name of a street or a town. (bp-WA)
- 1550 KRGO UT, Salt Lake City 10/15 2125 real strong w/C&W mx. (RLM-WA)

We have a longer WDXR this week, but not by much. If you are a new member, or an old-timer who hasn't reported lately, we would like to hear from you. Send your report in the same form as shown above, using ELT (which is now Eastern Standard Time, three hours ahead of Pacific time). We are into the DX season, so report your good catches. 73

central dx forum

6617 Maryland
Hammond, IN 46323

Bob Lazar-413 Ogg West-Madison, WI 53706
 Hello again. You may note the change of address above. I am now going to school at the University of Wisconsin here in Mad City. I probably won't be DXing too much at school here except for Monday mornings. Madison is all right for DXing except for one NSP local: WISM-1480. They cover from about 1450 to 1500 KHz and put an image on 570. In Milwaukee, as far as I know there are no NSP AM stations. WRIT-1340 might be now that they are NIS News. Up till about a year ago WRIT was NSP, then they went AN-6. WTSO-1070 here in Madison in on MMs but they have a SP on Sunday Mornings. I am presently using a Realistic Patrolman-9 radio for DXing. It seems to be pretty good on MW. I bought it at \$50 off on a sale this summer. I have a Heathkit GR-78 that is presently sitting back in Port Washington. I tried to sell it thru the Adviser about a month ago but no luck. I think I'll wait till after Christmas and try to sell it again. The dorm I live in is a 13 story high rise with nice concrete walls and other things that limit DX at times. I did manage to log the WMMR-1250 test. It came in quite well and made me quite happy as it was my first NJ station, state #43. Anyone who wants WISM, WOKY, or WMAQ surveys, I'll trade for any you have. See you all later, 73s.

Scott Mentzer-Rt. 3-Tylertown, MS 39667
 Greetings y'all. Well, I guess it's about time for the "Mississippi Gambler" to strike again. I'm still losing on those rc's and TP's, thanks to nasty ladies like Miss Eloise who likes to try blowing down any antenna in sight after first failing to drown the DXer, and friendly "Mexican Grizzly Bears" who "growl" over tests in both SS and EE. (We can't do much about the ladies, but I do wish a few bears would hibernate, at least for the winter months, hi.) While there isn't much to report from the test scene, some other interesting goodies have come along. Recent catches include my two biggest of the season, KGBS and KLTI, along with KGNO and WANL (None of these have varied yet; keep your fingers crossed, hi.) Latest veries: WJMW, WTAI, WISK, and WMLT (The last one on, yes, on a TEST!) Also, WOHO, who only took six months to get around to sending out a card. A hot tip to all you Eastern DXers: zero in on the state of Georgia. For some strange reason, they're tearing up the frequencies this season; in the past six weeks, I've pulled in four new beauties from the Peach State - small, lovely to log, and very, very, "variable", hi. I've also been trying a bit of CPC work this season with some pretty sorry results; out of two arranged tests, two "no-shows". Guess I'll just have to keep trying. Well, time to get things set up for another night of DX riot. Till next time, 73's and good DX.

Rich Mayhew-226 Dufferin-Valleyfield, PQ J6S 1Z7
 Hi! It's been a long time since I've written a DXF. Regarding RFS's comments in CDXF, I agree that IRCA should go to the booklet format (like NRC's DXN). I've been in IRCA almost 5 years now, since Dec. 70 when DXM was mimeographed by Dee to our present offset format. In a direct comparison to NRC's DX News booklet format, our two column format loses out immensely in appearance and easiness to read. Originally, I was in favor of the two column format solely because of its better binding and filing ability. Now, it makes no difference to me. Re RFS's comment that merger is inevitable, I disagree. Our organisation of material into their various sections (Eastern, Central, Western; LA, TP, TA for DXWW) is far superior to those of DX News, as it enables a DXer to find out information much easier. Especially domestic DX for his own region. I feel that as long as we keep an alternative in organisation of material and information for the DXer, we can survive and grow. Our weakest point is our production of

DXing aids (log books, pattern books; things of this nature) and DX articles. If you had to choose between DXM & DXN, you would join DXN over DXM for discounts on their fine Log book & Pattern book, also for their numerous articles (technical & non-technical) on DXing. That is why they have more members and why many IRCAs also belong to NRC. Re dues increase, if necessary it should be done. A \$2 increase is nothing when spread over a year. I have been getting a bargain for the five years that I've been a member, the dues have always been \$9.50 while postage has almost doubled from 6¢ to 10¢ now and 13¢ in Jan. 76 during this time. And I'm sorry to see that EDXF is disappearing & that DXF will be just two sections (East & West, I assume). I feel that is destroying our basic structure that makes us a viable alternative to the NRC. 74's....

western dx forum

EDITOR: RICK HEALD
 17412 ROLANDO AVE.
 CASTRO VALLEY, CA
 94546

MICHAEL G. WORST-4618 FREMONT N. #104-SEATTLE, WA. 98103

Hi guys. Haven't been able to do much DXing lately for obvious reasons. One of the FETs in my Sanserrino loop blew, so that kind of cramped my style anyway. I was surprised to see that we were supposed to have less than 300 members. I could have sworn that Phil told me a month ago that we had about 370 members. Guess I'll have to tell the printer to cut back (A little sarcasm there) Also I don't think a merger w/NRC is necessary. Both clubs are doing just fine the way things are. The IRCA is its own club and doesn't have to be compared w/anyone else. We're in need of filler material and articles. If anyone out there has anything of interest send it to the appropriate editor, or send it to me and I'll either type it up or send it to the proper editor. I don't necessarily want stuff that has recently appeared in another bulletin or will appear, though. 73.

ALBERT S. LOBEL-247 N 1st ST #27-EL CAJON, CA 92021 _YOUR AD-VISOR EDITOR Ph: (714) 440-2544
 Again I appear in these pages. Seems like at the beginning of ea. DX season I send in a few reports then I'm not heard from for the rest of the year. I'm going to try to break that occurrence this yr and rpt on a more regular basis. It has been said by many that IRCA & NRC should merge due to the fact that IRCA's membership is below the 300 mark and NRC's above 700. Many things have been blamed for the probable cause. I'd like to see both clubs exist and have good membership. As I said in my last WDXF and I quote from it, "I feel the existence of two clubs is a very good idea and would not like it if there was only one club. I happen to be a member of both IRCA & NRC. In my opinion IRCA is certainly the best of the two clubs." I feel the IRCA might just be in a slump at the present time and will emerge victorious very shortly. What IRCA needs is a little more support and confidence from its many loyal members and I know there must be some of you out there. Till next time, 73 and good DX. PADRES IN '76. CHARGERS NEVER (there's no hope for the Chargers!!)(Oakland certainly knows that, hi-Rth)

CREDO A. BISQUERA-86-123 KAKAIAPOLA ST-WAIANAE, HI 96792
 DX for the month of Oct has been very disappointing Cx have been so-so up to this date, 10/20/75. On Sat, Oct 11, Only Seattle stns were logged on 710 1000, and 1090. MM, Oct 13, DU Australians only 740 and 1550 hrd. The only mainland stn worthy of reporting, Oklahoma City on 1520. Sat morning Oct 18 brought in mainly JJ on 570, 750, 870, 1330, 1350, & 1440. All DX done on the ARB since the HQ 140 X is on the blink. 73

BILL HARANG-811 NEVADA AV-SAN JOSE, CA. 95125
Ph: (408) 292-8128

On Sun nite, 10/19, KDWN DJ Jimmy Walker mentioned o/the air that he rcvd a phone call from some of his friends in Fresno. On the 09/10 DXer Report, the topic was the power/frequency relationship. As stated on the 09/10 prgm, there's an interesting thing about the groundwave signal on the AM band, and that is at low frequencies the signal travels better than high on the dial. For example, KDWN operates w/50 kw during the day. A stn on 550 would need only about 7500 watts to cover the same amount of groundwave, but a stn @ 1100 would need nearly a million watts to cover the same area, and about 2 1/2 million watts would be necessary for a stn @ 1600 to push their signal out to the same .5mv/m region. Although the FCC allows no BGBs to exceed 50 kw, higher powers are common in Europe and Asia, of course. 73.

ERIC C. RITTENHOUSE-77 LINARIA WY-MENLO PARK, CA
94025

I'm sure that I'll kill myself if I try to write these things once a week, but each time I miss an issue, I get threatening phone calls from ----- (illegible, hi-Rth) Cx the past three days (09/23-25) have been absolutely unreal. On 09/24 I got definite carriers (TA) on 10 frequencies: 764, 818, 872, 881, 1034, 1052, 1196, 1205 & 1214. I had good PP audio on 1034 despite KTWO slop, fair audio on Dakar, and snatches on 881, 1196 & 1214 at various times. On 09/24 I sat down @ 2300 PDT and turned on the rig. It was on 660 and something was blasting the KNBR slop into the ground w/rr. I thought probably XERPM, but kept listening and nearly passed out when the KFAR IDs started booming in. As I type this (0220 PDT) KFAR is pegging the meter w/armchair strength. Until now it was my most wanted stn. On 9/24 @ 0517 PDT while tuned to 700 I was shocked to hear a 3.17 TC and Anchorage mentions very well, clinching KBYR for another most wanted. This stn is only 500 watts and it had the KNBR/XETRA slop buried!!! On 9/23 @ 2300 PDT while nulling KOB to bring in Dakar two WABC IDs snuck thru. WABC was, of course, another most wanted. On 9/24 @ 0253 PDT while tuned to KOA I was floored when KICY IDs and SSB banged thru o/ KTAC/GKRD. On 9/24 @ 2200 PDT I found a fair TA carrier on 656 also. Then there's the pest 250 watt AFRTS 890 Adak which makes an appearance of some type every nite, hi. (Here too-Rth) It is amazing to remember that this is only September. Oct and Nov could bring in some unprecedented catches, geomagnetic field willing. On WM, 9/24 I got a total of 7 new catches. If it had been a MMI think I would have had about 20. I repeat, CX have never been better!!!!!! I've updated totals and guess I should list them. As of 9/24: 612/127, 43/39, 7/5, 36/17. (That's logged/verified, states, provinces, countries, yes?-Rth) I can never seem to catch up the veries, hi. Unverified states are CT, WV, ND, AL, all w/1 stn w/only a couple IDs hrd. Unverified provs PQ, NB w/rpt out to CBA for recent reception. College draws still nearer but the Phantom of Menlo Park will stay glued to the dials until the very last weekend. If cx are this way this Fall I may spend half my life commuting between MP & Berkeley, hi. Until next time, good DX and Punxngyx (A Sanskrit expletive of questionably tasteful meaning) de ECR.....

RICK T. HEALD-17412 ROLANDO AV-CASTRO VALLEY, CA
94546 Ph: (415) 278-5032 before 2200 PLT

Howdy! Re membership. I thought we had at least 370 members and still growing. If we indeed are losing members, I like Al agree that we will rebound. And Al, remember when the Chargers were the best football team? The Raiders aren't doing so well this year either. DX remains nil, checked the band this morning 10/25 around 0600 PDT and did find the usual TP pests in. I can't believe the signal from N. Korea 655. They MUST be more than 1 megawatt. The one thing I must say in favor of them is that while being strong, they also have EXCELLENT fidelity. Would put most U.S. stns to shame I'm afraid. Though most US stns seem to be on a "loud sound trip", no hi's, no low's, just mid-range. And when I can hear to 20 cycles, I want to hear it on the air, and stations CAN put out.

that kind of sound. Biggest offender in Bay Area is KFRC 610. Best sounding AM is KNBR. KIQI is next in line, sounding better than their FM. Big news is that I'm moving in 2-3 weeks, to Oakland home of the A's, Raiders and Warriors. Will advise when to send mail to new address, which will be: 534 Weldon Ave, Oakland, CA 94610. Please remember Thanksgiving weekend for BARRF-III, a big SM DX'pedition planned, plus many other crazy things. Now that I'm moving to Oakland, nearer to many local XRs, regionals, but farther from KNBR & KGO, & the San Jose, locals, so should balance out. About a 12 mi move. Deadlines now every Friday. Lets show our strength in IRCA by contributing to all the various columns, whether just to say "hello" or talk about other things. Remember Ontario in '76. Until next week 73 de Rth.....

PRECISION FREQUENCY ANALYSIS
FOR THE MEDIUM-WAVE DX-ER

Ronald F. Schatz

Any DX'er who has ever wasted his time relogging old catches or who has strained his patience on weak, poorly modulated carriers will appreciate precision frequency analysis. PFA can be used to identify the slightest trace of the faintest signal on the band - in far less time than it takes to wait for some elusive ID in a strange language.

But PFA goes further than the usual efforts at precision frequency measurement; if a PFM is to be reliable for future reference, then something must accompany the reading in order to account for any change in frequency between the time the measurement is taken and the time it is referenced in the course of the hobby; the statistical methods of PFA gather the necessary data to compute such a "frequency integrity figure" (FIF).

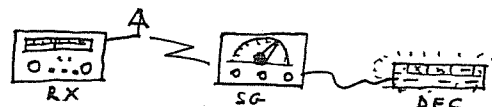
A station's exact frequency and the manner in which it changes is like a fingerprint or a signature; no two are exactly alike. A PFM-FIF combination, if compiled with sufficient accuracy, is such a fingerprint, and as long as no other station has a similar reading it may be acceptable for ID purposes and, with the cooperation of a sophisticated chief engineer, even for verification!

PFA, in its coarsest form, is the recognition that a signal on 834 kHz can only be Radio Belize, since no other station uses such an odd channel, but this is hardly "precision". Were another station to claim Belize's channel, then the reading would have to be accurate to the point that a difference would be noted in the two frequencies. To the nearest Hertz, Belize has been running steadily for a year on 834044 Hz; even if ten more stations were to occupy that channel, the chance of any one of them repeating Belize's frequency would be extremely remote. This is a radical example, however; on the average crowded channel a PFM to the Hertz is necessary in order to come up with a unique reading among the others present.

Methods of Frequency Measurement

PFA officially recognises only two methods of accurately measuring station frequencies to the nearest Hertz; other methods are inefficient or subject to intolerable error (e.g., use of the BFO or local oscillator.) One such acceptable method is indirect counter measurement (ICM), the other is called the "heteroscope" method (HSM).

1) Indirect Counter Measurement (ICM). Special instruments required are a digital frequency counter (One of Heathkit's "IB" series is recommended) and a stable signal generator. The set-up is illustrated below:



Note that there is no direct connexion to the receiver; the generator signal is "broadcast" to it.

Before beginning, warm up everything for at least a half hour. Calibrate the clock of the DFC with the highest WWV frequency available (usually 15 MHz at night).

The author has noted that even the primitive IB-101 has a very stable time base that will easily restrict its deviations to within one Hertz for several hours, even at the 15-MHz level; this means only a maximum error of +/- .07 Hz at MW frequencies, an ignorable factor if readings are only to be taken to the Hertz.

Measure the frequency in question by zero-beating the generator signal against that of the station; either steady the needle on the S-meter or form a circular lissajou on the oscilloscope. To insure accuracy, take several such readings, starting from scratch each time.

An alternative variation does not zero-beat the two signals, instead they are offset just enough to cause a very-low sub-audible heterodyne (SAH) which is then read against a watch "pulse-taking" fashion and either added or subtracted from the counter reading. Many find this method to be the easier of the two.

The average total error inherent in the ICM method is slightly over a Hertz in deviation, but the "mean" error is somewhat less than that figure.

2) Heteroscope Method (HSM). Special instruments required are an oscilloscope and a crystal calibrator. Again, warm things up, then align both the calibrator and the o'scope sweep scale against WWV.

As the reader can guess, the calibrator is used to form a heterodyne, which is then read on the scope by counting sine-wave peaks against the sweep scale. The HSM can be quite accurate, approaching that of the ICM method, but greater care is required in WWV alignment since there are more factors present for inherent error.

One definite advantage of the HSM is that it can measure the deviation limits of FM'd signals, such as Rumbo-525; this is impossible with the ICM method. FM'd signals may be recognised on the o'scope as a blurred sine wave, and on the counter as an inability to zero beat.

Statistical Analysis of Measurements

The frequency integrity figure (FIF) that forms an integral part of any PFA reading consists of at least four bits of data. We will use Titania-825 to illustrate the derivation of this data:

Titania	4 Nov 74	824 983
"	11 Nov 74	824 985
"	18 Nov 74	824 987
"	25 Nov 74	824 989

The average reading is 824 986.

The highest reading is 824 989 (+3).

The lowest reading is 824 983 (-3).

The standard deviation, to the nearest Hertz, is 3 (S3).

The readings cover a period of three weeks (3w).

And the frequency tends to increase at a rate of 2 Hz per week (+2w).

Putting the data together:

"Titania (PFA): 824 986 / +3,-3;S3;3w;+2w"

Of course, most stations don't show a steady drift in frequency, so the "+2w" is a "miscellaneous" figure. Note a second sample:

"Rumbo (PFA): 525 18. / +18,-18;S13;3w;F60"

Here the "F60" indicates that the frequency is modulated by a 60-Hz hum.

Other sample PFA's follow:

Artemisa (PFA):	1 158 585 / +4,-2;S2;4w
CMHK (PFA):	1 306 523 / +3,-4;S3; 4w
S.R.S. (PFA):	724 972 / +1,-3;S2;3w
Belize (PFA):	834 043 / +1,-2;S1;3w
Orientalis (PFA):	1 155 241 / +2,-3;S2;3w
Omega (PFA):	625 479 / +15,-15;S9;5w
WSM (PFA):	650 000 / +0,-0;S0;2y

Obviously, a PFA is far more useful to the DX'er than a singular PFM, since the FIF gives an indication of what a frequency can and will do. Omega may easily be found 9 Hz off its stated frequency, but certainly not Belize, and definitely not WSM! In fact, you can almost bet your life on WSM's exact frequency!

In the case of WSM, it may serve as a "standard reference frequency" (SRF) by which other signals may be measured.

By the way, the indication "(PFA):" should accompany each reading (as above), so that it may be distinguished from similar systems. Appropriate dates are also a must to include.

Referencing PFA Data

At present, few DX'ers have the necessary equipment to make good use of PFA's, let alone measure and compile such data, but we would like to describe two possible systems that are both fairly accurate as well as inexpensive.

1) Sub-Audible Heterodyne Analysis (SAHA). These are the heterodynes that oscillate your S-meter. The object is to count the complete swings of the needle over a period of time, compute the frequency, then to compare it with published PFA's. E.G., station A has a PFA of 1484 007, and that of station B is 1483 998. If your S-meter dips at the rate of 9 Hz, then stations A and B are the likely culprits. § SAHA is already a widely-used technique among trans-atlantic DX'ers.

2) Heterodyne Pitch Analysis (HPA). Credit to Edmunds and Taylor (NJ) for first publicising this "poor man's frequency meter"; i.e., a guitar, piano, pitch pipe, etc. Here the object is to determine what musical note corresponds to the heterodyne in the speaker, then reference the table below:

A	.0275	.055	.110	.22	.44	.88	1.8
B	.029	.058	.117	.23	.47	.93	1.9
B ^b	.031	.062	.123	.25	.49	.99	2
C	.033	.065	.131	.26	.52	1.05	2.1
C [#]	.035	.069	.139	.28	.55	1.11	2.2
D	.037	.073	.147	.29	.59	1.17	2.35
E ^b	.039	.078	.156	.31	.62	1.24	2.5
E	.041	.082	.165	.33	.66	1.3	2.6
F	.044	.087	.175	.35	.70	1.4	2.8
F [#]	.046	.092	.185	.37	.74	1.5	3
G	.049	.098	.196	.39	.78	1.6	3.1
G [#]	.052	.104	.208	.42	.83	1.7	3.3
A'	.055	.110	.22	.44	.88	1.8	3.5

The figures are in kiloHertz; they are to be added or subtracted as appropriate to determine the approximate frequency, which is then referenced to a published list of PFA's.

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November 7, 1970

OF

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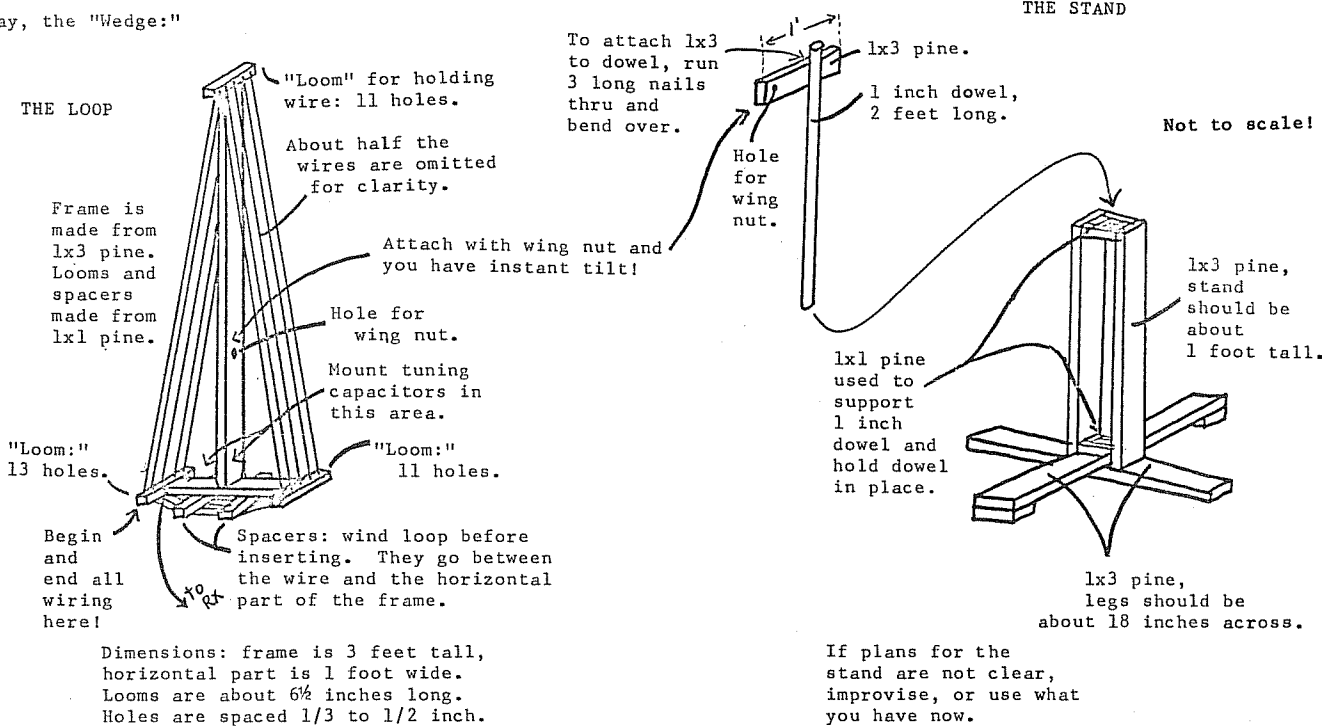
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THE "WEDGE" LOOP

This is meant to be a very general introduction to the "Wedge." This antenna was built originally as an experiment to find out if loop antennas had to be built in the usual "square" shape. The answer, after having played with a wedge-shaped loop for a couple weeks and hearing several new stations, is a resounding "no!"

The drawings below should enable anyone who is experienced in building loops to construct a "Wedge" without too much trouble. I will be working on a full set of plans which will include a very plain description of how to "wind" a loop; something which is often the stumbling block for beginning loop-builders.

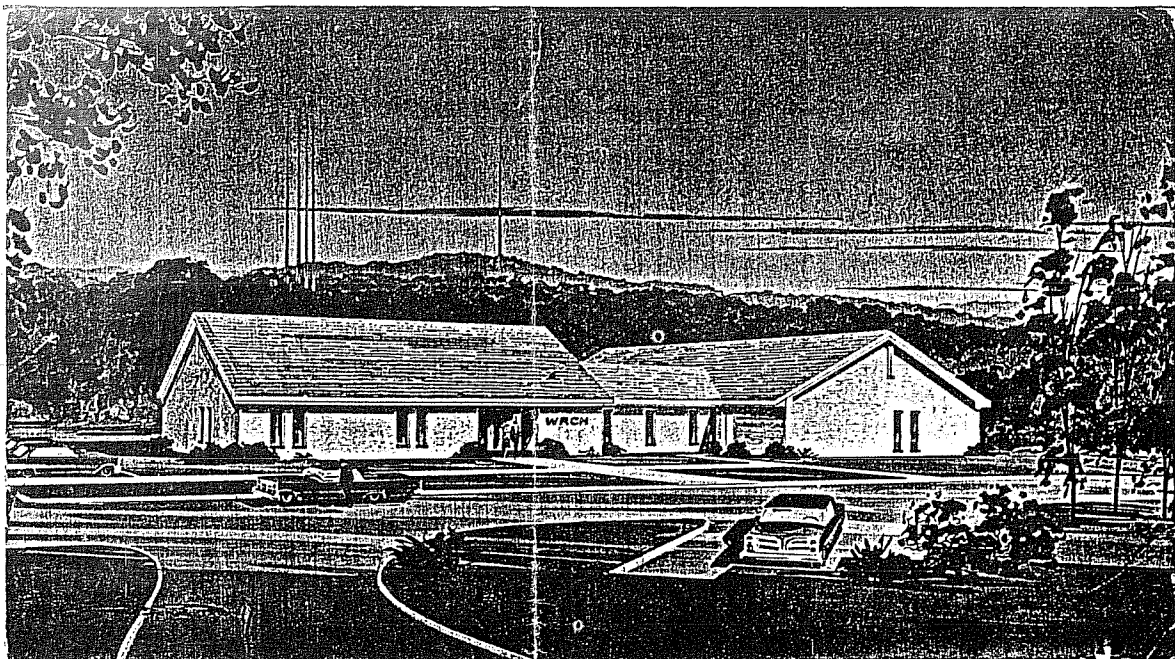
Anyway, the "Wedge:"



The Loop: May be wired however you want; mine is done like the NRC Altazimuth Loop, with a tuned 10-turn tank winding and a one-turn pick-up winding, unamplified. Signal pickup seems adequate; equal to a square 3-foot box loop. I assume that the principle would work for a balanced loop, amplified loop, Sanserino-type direct-coupled loop (10-turn coil is tuned and connected directly to the receiver), or whatever you'd like to try. I'm planning to build a 4 1/2 or 5 footer, about 1 1/2 feet wide at the bottom.

As I mentioned, this loop was built to find out if a loop had to be square, which it apparently does not. The possible advantages are numerous; one of the most noticeable is that it takes up a lot less floor space than a square loop, which should interest some of our space-conscious members (apartment dwellers, etc.). In addition, the spacers in the antenna, if you can tell from the drawing, are not woven, but keep the wires all in a single straight line. Theoretically, this should make for a slightly better nulling ability than woven spacers. Also, the "Wedge" weighs a little less, uses less wire, maybe even costs a little less to build than a 3 foot square loop, without sacrificing performance.

Let me know what you experience if you build one of these. Detailed plans will be available soon; let me know if you're interested. Charles A. Wolff, 4911 Proctor Road, Castro Valley, CA 94546.



Pioneer Radio Days

By Raymond M. Bell

The calm was threatened by a suit in Chicago. This city had some of the most congested airwaves, and, when Zenith Radio Corporation ran WJAZ in the Windy City, their license limited their Class B facility to only two hours of broadcasting a week. Their timeslot was from 10:00 PM to 12:00 PM Thursdays, on 322.4m (930 khz). This was the frequency used by KOA in Denver, which apparently was off on Thursdays to observe Denver's silent night. WJAZ was unhappy with its timesharing scheme, so it moved to 329.5m (910 khz), and began broadcasting on what, until now, had been an exclusive Canadian frequency. No permission had been given for the move, so the Department of Commerce took Zenith to court for its station's "wave piracy." WJAZ's defense in the case was that Hoover had overstepped his powers in assigning WJAZ's frequency and times of operation. On April 16, 1926, Judge James H. Wilkenson announced his decision. He sided with the wayward Chicago broadcaster, saying that it had only broken a rule that was instituted without legal basis.

The reaction was swift in coming. Hoover declared that the only way to avoid chaos on the radio waves was immediate action by Congress. Either the strengthening of the powers of the Secretary of Commerce, or the institution of an independent committee similar to the Interstate Commerce Commission, would be necessary to save broadcasting from complete collapse.

Eugene F. McDonald, Jr., President of the Zenith Radio Corporation, which owned WJAZ, strongly disagreed with Hoover's view of imminent chaos. He noted that the Secretary still had the authority to issue licenses, and, if Hoover thought an area too congested, he did not have to give out any more licenses. In addition, McDonald claimed that only 5% of the broadcasters had the special licenses necessary to legally change frequencies.

Everyone now looked to Congress to correct the tenuous situation. The House of Representatives had passed a bill on March 5, which had been introduced by Wallace H. White, Jr., of Maine. Pressure was now put on the Senate to get moving. Finally, on July 2, they passed a bill introduced by Clarence C. Dill of Montana. The measures were not the same; Rep. White's law increased the powers of the Secretary of Commerce, while Sen. Dill's formed an independent commission. The differences would have to be worked out in committee. Unfortunately, there was no time for this, as Congress adjourned, and would not be in session until five months later, on December 8, after the elections.

Because Secretary Hoover was still unsure as to what powers he did and did not have, immediately after Congress adjourned he asked the Department of Justice to give its opinion on what authorities he held. Acting Attorney Donovan issued the opinion on July 8. Not only did he feel that Hoover had no control over the frequencies that the stations used, or their times of operation, except on the government longwave band, but he also added that the stations were free to use whatever power they wished. Lastly, and most devastatingly, he declared that Hoover was required to issue a license to any person whose station was ready to go on the air.

Now stripped of virtually all his power, Secretary Hoover asked for restraint from the stations. He requested that they voluntarily retain their frequencies and powers. In particular, he asked that the Canadian frequencies not be interfered with. Most broadcasters vowed to follow the Secretary's request. The strongest support for the status quo came from Class B broadcasters, who could only be hurt by "wave pirates" jumping to their frequencies.

There were many factors which, it was believed, would limit any chaos the now unregulated broadcasters would have to contend with. First, it was felt that Congress would quickly pass a new bill as soon as it reconvened. Thus, anyone who went to the expense of erecting a new station would have to face the possibility that there might not be room for them when the new system was set up. Additionally, any station changing their frequency or increasing their power might face attacks from the public, as well as possible unsympathetic feelings from the new controllers.

On the other hand, there were also strong enticements for a station to take advantage of its new freedom. Some broadcasters had previously requested permission to make a change, only to see the administration break down before their request could be acted on. Now they were free to make the change they wished. Others saw a unique chance to grab a choice Class B frequency, and felt compelled to act before some other station made the move. Lastly, increasing your power was a good method for increasing your audience, as well as an effective way to fight interference from other stations (as long as they didn't fight back!)

(To be continued next available space.)

until November 1922. By 1923 there were 500 stations and during that year the present plan of 10 kc. allocation was inaugurated. The early receivers used were crystal and one tube sets. Most sets were homemade, although an early Westinghouse product could be bought for \$65. Chicago was real DX and a fan with a log of 25 stations was not easy to find. KDKA pioneered in short as well as medium waves. In 1923 transmissions were begun on 94 meters. The world was astonished to find their DX value. In 1925 a shift was made to 63 m. In the latter year WGY began broadcasting on 41.5 meters.

More Changes in Canada

EFFECTIVE September first, the Canadian Radio Broadcasting Commission is making a new allocation of frequencies affecting sixteen stations and likewise affecting indirectly the reception of many U. S. stations. In making these changes, which, the Commission states, are the result of field measurements and careful study, these principles have been followed:

Stations of 1000 watts and over have been given the lower frequency channels below 1000 kc. Stations of 100 watts and under, serving local areas only, have, as a rule, been allocated channels above 1200 kc. Low power stations in particularly isolated localities, have been given channels below 1000 kc. Low power stations which are giving only an intermittent service, or which are used largely for experimental purposes, have been allocated channels between 1500 and 1600 kc.

The changes are contained in the indices in this issue of RADEX.

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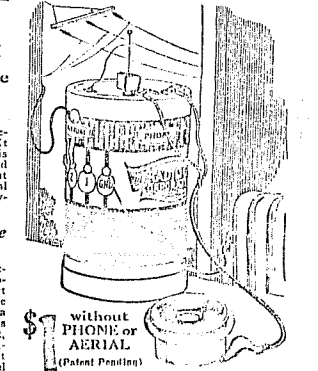
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What They Say About RADIOGEM
I received recently \$1.00 to pay for the RadioGem. I had it carefully used by our wireless operator and then that it works in actually fully as good as any crystal set we know of.

RadioGem received, which we assembled and were very much satisfied as to its construction and the clearness and volume of tone produced.

The greatest pleasure I heard on any of our sets is 1200 meters, being heard every day at New York, N. Y. I think your set is the best I have ever sold at one price.

Received P.O.M.O. amt. \$1.00 for another "A. A. RADIOGEM". This one arrived in 10 days and I about 15 ft. of distance read made from 1000 meters to 1200 meters, and heard the same stations as before and heard them better than I have heard before.

Your RADIOGEM RECEIVED is a wonder. I have received every station in Philadelphia with it much better than with a high-priced crystal set.

Your two RadioGem sets received last night, and one was wired up for testing. After 10 minutes in the air, and about 1000 meters, I heard the same stations as before. After they were wired up, I could hear about 1200 meters, and heard the same stations as before. I would be pleased to hear from you.

We had that this set of a great deal more than you could get for it. We had WJAZ on our station set last night; this being the Baltimore American Broadcasting station, and that was in the Baltimore area and not received results. After the station was wired up, we continued to hear the station set and about 1000 meters, I heard the same stations as before. I would be pleased to hear from you.

The plain a matter of 20 miles over your "RadioGem" is something of a possibility. You should set for to the truth. I constructed our low cost receiver, installed it with an aerial, and the first test was in a while, but at the same time, I heard the same stations as before. I would be pleased to hear from you.

DX**Worldwide**BRUCE PORTZER,
EditorAll times GMT/UTC
Deadline Saturdays

7021 Sand Pt. Way NE, #215 - Seattle, WA 98115 - (206)522-2521

ATLANTIC DX ROUNDUP

- 701 ? UNID, perhaps Morocco at 22h3 10/19 w/strong het & some mx coming thru. Didn't sound like AA mx but sig wasn't too good anyway. (Eckman,PA)
- 827 SPAIN, Barcelona in w/man in SS at 22h4 10/19. Still here at 23h3 at good level. (Eckman,PA)
- 863 FRANCE, Paris assumed to be the one here 2232 10/19 w/talk in unid lang. Fair level amidst TVI. Also noted 22h6 10/20 w/fair signal. (Eckman,PA)
- 872 SPAIN, Zaragoza was in well w/SS talk & mx 2303 10/19. First time I've been able to get definite SS out of this one. (Eckman,PA)
- 881 ? UNID carrier w/TA bearing; some interference from WCBS 0642-0725 10/18. No audio. Steady signal at S7. Tuned back at 0731. Gone. TA or TVI? (Hanavan,CA) (Sounds more like TVI; a TA carrier would be more subject to deep fading. bp)
- 908 UNID, something here hetting 910 domestics 2233 10/19. Perhaps BBC. Not noted afterwards on rechecks. (Eckman)
- 1088 ALBANIA, Tirana taped Internationale here 2227 10/19 at good level w/het. 139h was xint at this time. (Eckman) Thought Tirana had moved from here but guess not. man
- 1223 SPAIN assumed to be the one here w/c1 type mx 2252+ 10/19. Def SAH noted 2350 perhaps the Bulgarian trying to get through. (Eckman,PA)
- 1286 CZECHOSLOVAKIA, Prague def. ID'ed w/SW //6055 w/"Inter-program." Good level w/YL talking at 2332 10/19 in GG I think. Several ments. of "Czech." (Eckman,PA)
- 1367 UNID, def carrier noted here at 23h5 10/19; only at fair level. Little else got through. (Eckman,PA)
- 1376 FRANCE, Lille hetting St.Pierre-1375 badly at 2222 10/19. St. Pierre seemed to be on top most times when checked. (Eckman,PA)
- 1439 LUXEMBOURG, escaping me once again w/strong het & some audio but not enough to ID lang. around 2311 10/19. Ben Dangerfield hrd this also around this time. (Eckman)
- 1475 AUSTRIA, Wien noted 2235-2327+ 10/19 at various times. Good level w/pop mx on occasion (some US). Had been bothering me as I hrd this 10/1 at SSS too but didn't think Wien was on this late. Ben Dangerfield IDed language as GG. (Eckman,PA)
- 1554 FRANCE, Nice, ORTF in nicely 10/11 0513, good audio w/only slight fading, minor het ex 1550, inst & vocal mx w/several TCs, 0530 ID "Inter-France, soix-heures trente". Signal peaked 0520-0530, fadeout by 0545. My first TA! (Ball,ON)

PAN AMERICAN DX ROUNDUP

- 540 c MEXICO, San Luis Potosi, XEWA booming in 10/12 0530-0540 w/La Hora del Ranchera, several ads, ID as XEW. (Ball,ON) --- hrd 1237 10/6 u/CBK. Male anc, could not tell what he was saying; CBK was too strong. (Lobel,CA)
- 640 c CUBA, La Habana, CMQ xint 10/12 0420 w/light mx, 0h30 TC, chime IS & ID "Esta el sintonia con R. Liberación, desde La Habana, Cuba, primer territorio libre en América, en el ano del primer congreso." (Ball,ON)
- 655 c EL SALVADOR, San Salvador, YSS booming in during aurora 10/13 0050-0100 light mx, 0100 ID "Esta es la voz de su patria, YSS, R. Nacional de El Salvador..." 0102 into "Melodias en Marimbas" (Ball,ON)
- 720 c CUBA, Colón, CMGN good 10/12 in WGN mull w/IV de Cuba 77600/6h0, 06h5 usual diatribe on the evils of "capitalismo", 0650-0700 inst mx, 0700 ID "esta es la Voz de Cuba" (Ball,ON)
- 800 c NETHERLANDS ANTILLES, Bonaire, PJB good 10/5 mixing w/CKIW 0355 EE Flgs pgm "Voice of Truth", 0400 ID "This is the Int'l sound of the Caribbean, Trans World Radio, Bonaire", then into "Music & You". (Ball,ON)
- 820 c COLOMBIA, Cali, IV de Rio Cauca all alone 10/12 (WBAP off, presumably) 0606-0630 w/typical Colombian cumbias & paseos 0615 "Esta es la musica de Colombia..." (Ball)
- 830 VENEZUELA, Sabana Grande, R. Sensacion good in aurora 10/13, tropical rhythms, several IDs & TCs, mixing w/unid, likely the Dominican, no sign of WCCO. I refer to 10/13 as an auroral night since ex were typically auroral (i.e. noisy w/enhanced southerly reception & several northern stns blanked out), yet the WWV K-index

- at 0000 was only 2. Any propagation experts out there care to explain this? (Ball,ON) (There was a lot of solar activity during the preceding days. While the activity had died down, the ionosphere was still unsettled enough to produce the results you noted. bp)
- 834 c BELIZE, R. Belize good in aurora 10/13, het ex 830, 0300 ID "This is R. Belize, Voice of the new Central American nation of Belize in the heart of the Caribbean basin", then into EE mx. (Ball ON) --- Belize at 03h3 10/20 w/c1 mx. Strongest signal yet from R. Belize, S7. (Hanavan,CA)
- 900 MEXICO, México, XEW 11h5 10/6 w/a very strong signal & many IDs as EH-kees eh double oo. Male anc, hrd until 1200 when local KDDB-910 came back on & slop was just too much. (Lobel,CA)
- 960 c COLOMBIA, Mangangué, R. Sutatenza in nicely o/domestics in aurora 10/13, clear ID "R. Sutatenza de Colombia" taped 0029. (Ball,ON)
- 970 MEXICO, Cd. Juarez, XEJ 0525 10/6 w/a very overpowering S-9 to 10 signal, (stronger than local KSON-12h0).
- 1000 t Typical Mexican mx & laughter. Many IDs. (Lobel,CA)
- COLOMBIA, Cartagena, HJAQ may have been the SS speaking stn signing off. Could not tell w/strong signal from KOMO overpowering. (Lobel,CA) (Believe HJAQ is AN so prob not them. bp)
- 1165 ? UNID w/strong carrier but no audio around 1000 sked s/on 10/20. Bad KSL & KLOK slop. The Lighthouse?(Peterson,CA)
- 1265 c ST. KITTS, Basseterre, R. Paradise good in aurora 10/13 w/some slop from 1260/1270 domestics. 2330 ID "Radio Paradise, coming to you from St. Kitts in the West Indies." then into "The Hour of Deliverance." (Ball,ON)
- 1300 MEXICO, Cd. Juarez, XEP 0700 10/6 w/R. Trece ID. Hrd very faintly u/a very strong KYNO. (Lobel,CA)
- 1470 ? UNID. What stn here uses a R. Uno ID? Hrd here u/KWIZ slop at 0825 10/6. (Lobel,CA) (Nothing listed. Might have been XESM promoting their sister stn XERPM-660. bp)
- 1550 ? UNID 10/12 fair sig thru WOKJ 0710-0720 w/tropical rhythms, only ID 0714 sounded like "Emisora mas Potenta, Santo Domingo", no Dominicans listed on this channel. What?? (Ball,ON)

PACIFIC DX ROUNDUP

- 548 RSFSR, Vladivostok in but quite weak 1150 10/20. (Peterson,CA) --- good w/c1 mx 1355 10/25, easily separable from 550 domestics. (Portzer,WA)
- 575 RSFSR, 1h03 10/25 w/man talking in RR through slop from local KVI-570. (Portzer,WA)
- 584 RSFSR, fair-good w/CC talk, then martial mx 1h25 10/23. (Portzer,WA)
- 665 ? UNID was weak at 1152 10/20 at about the same time as USSR-5h8, so perhaps at same distance? Listed USSR-665 and 5h8 near each other so perhaps this is USSR. Still no definite ID. (Peterson,CA)
- 710w S. KOREA, Seoul, HLKA, re the reported "drift" on this station: this freq variation is intentional in order to dodge intense N. Korea jamming near this freq which penetrates deep into South. KBS has better technical standards any day! (Taylor,IN)
- 735 N. KOREA, Pyongyang barely audible through CKIG & KRMG. SH at 10h0 10/20. New. (Hanavan,CA) --- first time this season w/singing 1h45 10/20. Horrendous CKIG QRM. (Peterson)
- 760 CHINA, City unk, audible u/KFMB CC, some QRM from WJR, 11h0 10/20. (Peterson,CA)
- 782 ? UNID previously rptd as a carrier made it w/audio 1115-35 10/20. Bad slop from KORI-780. Freq meas'd as 781.997 (est error .4 Hz+gating error) at 1120. Lang sounds like RR & good freq accuracy suggests listed USSR but no IS on 1/2 hr nor during recheck at 1300. (Peterson,CA)
- 817 N. KOREA, believed the one noted 1352 10/25 w/KK chorus in weakly. Seemed // 655 but not 100% sure. (Portzer,WA)
- 835 CHINA, Kiangsi prov, at 1057 10/20 w/man talking GG. S5, new. (Hanavan,CA) --- in 1050 10/20 w/usual pgm. Good signal. (Peterson,CA) --- strongest TP on the dial 1h11 10/25 w/wild CC singing. (Portzer,WA)
- 820 JAPAN, synchros presumed the one w/YL in JJ 10/1h 1351; singing 1355. Softspoken man & girl until 1h00; no pips hrd. Second stn under w/mx, choral singing, but lang not IDable. KGO slop. (Pejza,CA)
- 840 RSFSR, soft occidental mx 1352 10/15; man talking in JJ(?); midnight in Moscow chimes 1359; pips at 1h00. Possibly my unid of 9/6 cf. DXWV p 27. Second stn u/maybe 2; both CC & JJ hrd. (Pejza,CA) --- noted w/chimes 1359 10/25 thru KTAC-850 slop. (Portzer,WA)
- 880 ? Mixture of orientals 10/16 1350-1h05. CC singing first thing hrd; then after a fade, talk in JJ or KK w/mx under; man & YL talk until the hour; only one long pips hrd 1h00 followed by gal in CC. Lots of noise, mostly I think from a low het between the stns. (Pejza)

885 ? UNID carrier present here 10/16 1354. No audio so switched back to 880. (Pejza,CA)
 1010 JAPAN, Osaka, Asahi Hoso, JONR good signal at 0930 10/20 w/talk in JJ. (Peterson,CA)
 1010 RSFSR, Magadan hrd after many tries w/8-note Midnight in Moscow chimes (abbrev from usual chimes) 1029-30 10/20. About = JONR strength. New. (Peterson,CA)
 1040 CHINA, Shanghai at 1211 10/20. Strongest TP this morning. A steady S8. KHVH far u/NBC NIS. (Hanavan,CA) --- very strong carrier but only fair audio w/CC chorus 1420 10/25. Anyone else noticed them like that? (Portzer,WA)
 1178 OKINAWA, Naha, VOA 1125 10/20 just prior to VOA-1180 s/on. New. (Hanavan,CA)
 1210 JAPAN, Osaka, JOOR 1148 10/20 deep u/KGYN. Poor sig. New. (Hanavan,CA)
 1380 HAWAII, Honolulu, KPOI good 0850 10/20 w/rock.(Peterson)
 1475 MALAYSIA, Sabah, Kota Kinabalu 1136 10/20 just a carrier. SL. New. (Hanavan,CA)

DXWW II Special

A Listing of Ultrastable Transatlantic Stations Suitable for Frequency Reference Purposes by Gordon P. Nelson

One of the most difficult problems encountered in practical frequency signature analysis is that of obtaining sufficiently accurate and stable frequency signals to permit counter clock adjustment and general system check-out. U.S. domestic signals are unsuitable in almost all cases because of the the generous plus-or-minus 20 Hz frequency tolerance permitted by the FCC Rules and Regulations; WWV and other shortwave "standard frequency" stations are similarly unsuitable due to problems of interference and ionospheric doppler shifting effects.²

The following is a listing of ultrastable European transmitters whose frequency has not varied as much as 0.1 Hz during the past 4 months according to EBU measurements. The EBU frequency measurement network consists of 7 primary and 4 secondary intercept and measurement stations each of which has frequency measurement capability with an absolute accuracy better than 0.1 Hz. The results of periodic frequency measurements are pooled on a monthly basis and both the average frequency and extremes of variation about the average are tabulated.³ In order to qualify for our listing a station must meet the following criteria: (a) Have maintained a perfect mean nominal frequency for the past four months (e.g., 764.0000 kHz) and never have been observed as much as 0.1 Hz from the mean and (b) Operate with at least 50 kW power. Out of a total of 748 stations monitored by EBU during this period, only 56, or about 7%, meet these criteria. While future frequency behavior is of course uncertain, the past behavior of these stations suggests that the frequency determining devices and engineering personnel are of the highest quality and significant departures from "perfect" frequency control are unlikely.

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International DX Forum report this number, from our man in Durban:

Denzil V. Baker, 4 Emllyn, 18 Noble Road, Durban 4001, Republic of South Africa

Greetings from Sunny South Africa. For an introduction, am 38, employed by the Post Office as clerk and a bachelor. Have been DXing for about 22 years on and off. My present DX interest is Medium Wave though sometimes play around on the shortwaves. Apart from being a member of IRCA, am also member of South African DX Club, South African Radio League and BBC World Radio Club. Due to lack of time, am only presently active in IRCA and SADX. In SADX, I am editor of Totem Pole, QSL Round-Up, and FM/TV DX sections and a fairly regular contributor to that club's DX Logbook section. Am also Branch Secretary of the Durban Branch of the SADX, which I helped form. Due to the distance between SA and USA cannot take a more active part in IRCA affairs so have to content myself with contributing to DXWW and DXWW II. MW DX in the southern part of Africa is varied and is most interesting. In the Western Cape (around Cape Town), South American and United States stations are common as are European and African stations. However in the Durban area (Africa's largest and busiest port), Far East, Australian, Middle East, Asian and European stations dominate. South and Central American and even United States stations are somewhat rare. Catches for me include 4QD (1550 kHz, Emerald, Queensland—ed), XERF (Mexico), WCKY (USA), R. Paradise (St. Kitts), DXXX (1010 kHz, 25 kW, Zamboanga City, Philippines), ELWA (710 kHz, 10 kW, Monrovia, Liberia). As perhaps only IRCA member in Africa feel it is my duty to provide IRCA with up to date news on African stations to members. Very interested in US stations (one of my reasons for joining IRCA). Had hoped to attend last IRCA Convention but due to personal circumstances was unable to make it but hope next one. Should mention am also engaged in monitoring services for TWR Swaziland and Swazi Music Radio. Finally other interests include model railroading, music, sleeping, eating, reading, world affairs, photography...de Denzil. (Many thanks for your first Forum report, Denzil. Do you take a professional interest in sleeping and eating? hi. Hope you will report often to IDXP—ed)

548	Braunschweig	899	Milano
557	Helsinki	908	London
575	Stuttgart	926	Wavre
584	Wien	944	Toulouse
	Madrid	953	Brno
	Paris	971	Hamburg
593	Frankfurt	1025	Dobl
602	Lyon	1034	Milano
638	Prague	1052	Droitwich
	La Coruña	1115	Bari
647	Daventry	1169	Moghilev
656	Naples	1205	Bordeaux
674	Marseille	1214	Tallinn
683	Sevilla		Washford
692	Moorside Edge	1232	Kodice
728	Berlin	1241	Nancy
737	Barcelona	1259	Warsaw
755	Braunschweig	1277	Strasbourg
773	Voronej	1286	Prague
	Gáceres	1331	Roma
791	Limoges	1367	Bialystok
809	Crowborough	1376	Lille
836	Nancy	1403	Lvov
845	Roma	1448	Squinzano
854	Murcia	1546	Vinnitza
863	Paris	1554	Nice
872	Frankfurt	1578	Genoa
	Leningrad	1586	Langenburg
881	Washford		

Notes and references:

1) As best we know, only one U.S. BCB station has routinely operated on a frequency traceable to NBS standards—WSM. Formerly their frequency was controlled by a rubidium atomic clock on loan from the U.S. government in connection with a series of propagation studies; now their frequency is controlled by a frequency standard which is phase-locked to WWVB on 60 kHz. When the phase lock system is in operation ("about 95% of the time" according to the WSM Chief Engineer), WSM provides an idea frequency standard for checking and adjusting frequency signature measurement equipment. Those wishing to use WSM as a frequency standard should definitely check with the station to confirm that they are operating with the WWVB phase-lock system however; in the past few months both Glenn Jacobs and I have found them operating on the secondary system with frequency offsets of more than 2 Hz. Note that Doppler shift at MW frequencies is negligible.

- 2) Distribution of Standard Frequency and Time Signals, A.H. Morgan, Proceedings of the IEEE, Vol. 55, No. 6, June 1967
- 3) Monthly Spectrum Utilization Report, EBU Internal Document, April-July, 1975, via author

Editor's note: Frequency Signature Analysis of the sort advocated by Gordon requires facilities that can measure MW frequencies with an accuracy on the order of 0.1 Hz or better. Since the clock of a counter which is to be capable of such accuracy must attain a long-stability of at least one magnitude greater than this minimum (0.1 Hz), a long-term stability of at least 1.0 part in 10^8 (1 part in 100 million, i.e. 1 Hertz in 100 MHz), equal to 0.01 Hz, is necessary. SWBC: WWV, WWVH, JJJ, etc., have a stability of 1 part in 10^{12} (i.e. 1 Hertz in 1,000,000 MHz) as transmitted; however, interference and doppler shift reduce the short-term stability as received, drastically. In order to achieve the necessary calibration of counter clocks, one must resort to secondary standards or shift to the time domain (out of the question to the MW DXer).

Precision Frequency Measurement (PFM), by reason of common usage, has come to imply an accuracy on the order of 1-2 Hz (to be improved upon with experience). With reasonable care, counter time bases can be calibrated by reference to WWV and WWVH with sufficient accuracy for PFM purposes.

DXWW II Special Technical Article

INFERENCEAL FREQUENCY MEASUREMENT

BY

HETERODYNE ANALYSIS

By Glenn Hauser

(ed. note: although written by Glenn Hauser for NASWA, SPEEDX and NNRG, and despite being directed to the SWL, I believe that this article would be of value to the medium-level MW DXer who lacks the necessary equipment for making PFM's)

Don't let that title scare you: this article will describe the easy (or, at least, inexpensive) way to measure shortwave frequencies more exactly, without special equipment.

But first, let's answer the question why? At the present state of the art, just about everyone (except some major broadcasters, such as Radio Moscow and VOA) favors expressing frequencies to the nearest 5 kHz. This makes sense, as 5 kHz is the normal separation between SW channels (unfortunately).

Yet, many stations can be found off-frequency (that is, 'split' somewhere between the 5-kHz clusters)—and on bands below 6 MHz, the 5-kHz spacing does not always apply. Some off-frequency operations are temporary, and/or vary widely; others are rock steady. Both are of interest to DXers; one is a symptom of poor engineering or transmitter malfunction; the other can be as distinctive as a fingerprint, and a significant aid to identifying the station.

The best way to go about precision frequency measurement (PFM) is to employ a frequency counter (such as the Heath IB-1101 or IB-1102)¹. With one of these, frequencies can be measured down to 1 Hz. A spectrum analyzer² can also be very useful. But there is another method that can provide adequate results, is a bit of fun, and requires nothing more than a (preferably well-tuned) piano, or some other convenient wide-range musical instrument (or, if you are so fortunate, your own perfect sense of pitch).

You see, whenever two stations are not transmitting on the same frequency, there is a heterodyne between. Now, we can make some use of these annoyances! We can do this up to about 5000 Hz (5 kHz); some receivers attenuate audio frequencies higher than this, and the approximate limit of human hearing is 15 kHz.

Thus, it follows that if the exact frequency of one of the stations is known (or can be reasonably assumed), then the exact frequency of other can be inferred by determining the musical pitch of the heterodyne produced between them.

How to be sure which one is 'off' frequency? Several ways. Your receiver may be calibrated sufficiently accurately (depending on how far off one of them is); experience is a good tool: has the VOA ever been known to vary more than a few Hz? No. Another one, often overlooked, is the absence or presence of subaudible heterodynes. Yes, SAH³. Unless the two stations are zero-beat (exactly on the same frequency), they will produce a SAH. These are easiest to measure when less than 10 Hz (lacking a spectrum analyzer or frequency counter). Simply count the number of 'flutters', or S-meter dips, per minute, and divide by 60. This is easier to do on MW, where there is less short-term propagation fading. If one of the SW stations is fading due to propagation, it will be difficult to determine the SAH. Also, if there is a third station, this this will complicate the picture, as there will be not two, but three SAHs—as each station interacts with each of the others.

If the frequency involved happens to lie right on a harmonic of your crystal calibrator, you can also look for a SAH (they are most obvious when two signals are of the same strength). Even without an S-meter, you can often hear the SAH (not the pitch, but the regular flutter) well enough to count it. Check your calibrator against WWV first to be sure it's set with 'SAH range' of other harmonics.

The point is: if one of the two (audibly) heterodyning frequencies has a SAH on it, it is safe to assume that one is 'on' frequency. Why? the chances are remote that two drifters or variants will just happen to land within 10 or 15 Hz of each other.

The big step is disarmingly simple: find the note that most closely matches the heterodyne pitch, and consult the table (be sure you're on the right octave). Now you can report the frequency to two decimal places. To determine whether the 'het' station is high or low, invoke your receiver's maximum selectivity and tune back and forth. If you still can't tell, or there's a chance neither is 'on' channel, you can nevertheless report their separation.

Some DX editors may be understandably reluctant to publish such superficially useless information. The extra digits throw frequency column alignment. But the PFM can be given in the text, for the benefit of all who are interested.

Musical Notes & Corresponding Heterodyne Frequency⁴

A	0.110	0.22	0.44	0.88	1.76	3.52
B ^b	0.117	0.23	0.47	0.93	1.86	3.73
B	0.123	0.25	0.49	0.99	1.98	3.95
C	0.131	0.26	0.52	1.05	2.09	4.19
C [#]	0.139	0.28	0.55	1.11	2.22	4.43
D	0.147	0.29	0.59	1.17	2.35	4.70
E ^b	0.156	0.31	0.62	1.24	2.49	4.98
E	0.165	0.33	0.66	1.32	2.64	
F	0.175	0.35	0.70	1.40	2.79	
F [#]	0.185	0.37	0.74	1.48	2.96	
G	0.196	0.39	0.78	1.57	3.14	
G [#]	0.208	0.42	0.83	1.66	3.32	

Frequencies are in kHz; based on standard American pitch wherein A above middle C equals 440 Hz. Notes other than A are not precise, but rounded. The third digit in the first octave is for clarity, not precision

¹ See "Precision Frequency Measurement" by Ronald F. Schatz; NRC reprint No. R15 (30¢ to non-members from National Radio Club, Box 127, Boonton, NJ 07005. Also relevant is "The FMS-3 Frequency Marker Standard" reviewed by Robert L. Foxworth; NRC reprint No. R17 (80¢).

² For an exhaustive review of the Heath SB-620 Spectrum Analyzer, by Foxworth, order NRC reprint No. 20 (\$3.00).

³ "Yes, SAH!" by the author, explains SAH's as applied to MW. Order reprint No. T7 (8¢ plus SASE from IRCA Reprints, P.O. Box 21462, Seattle, WA 98111, U.S.A.)

⁴ adapted from "Whistle a Happy Het?" by Ronald F. Schatz, IRCA DX Worldwide column, DX Monitor, March 23, 1974.

PRECISION FREQUENCY MONITORING SURVEY
from Gordon P. Nelson and Ronald F. Schatz

kHz	Ident	E	MMDaY	kHz	Ident	E	MMDaY
527.03	Rumbo	1	S10035	844.9995	Rome	1d	N08285
528.9743	ABeida	1d	N08275	871.9972	EAJ101	1c	N09075
548.0182	Oran	5c	N09045	871.9997	Frankf	1c	N09075
574.947	Cucu	1	S10035	917.0125	EAJ2	1c	N09075
575.0041	Bechar	1c	N08275	919.999	HJAF	1	S10035
625.034	Omegg	1	S10035	929.994	Antill	1	S10035
638.0000	Coruñ	1d	N09075	961.9991	Tunis	1d	N09035
645.011	ZP19	1	S10035	988.9993	RIAS	1d	N09035
655.001	YSS	1	S10035	1004.962	HJDP	1	S10035
655.9974	EAJ203	5d	N09045	1015.030	Reloj	1	S10035
664.9971	Ruhrdo	1d	N09075	1016.0000	Istanb	1c	N09065
664.9993	Lisbon	1d	N09075	1038.0038	Babylo	2c	N09065
674.996	Sonora	1	S10035	1043.0009	Dresde	2c	N09075
701.0076	Andorr	2c	N09065	1059.171	CMKG	1	S10035
701.0254	SAiou	2c	N09065	1069.360	HJAH	1	S10035
718.9984	Nortel	1c	N09065	1087.9999	Crowbo	1c	N09035
724.868	TILX	1	S10035	1123.9932	EAJ15	3d	N09075
736.9998	RNE	1c	N09065	1124.0004	Lenin	2c	N09075
737.0000	RNE	2c	N09075	1132.9999	Tovarn	1d	N09075
755.0024	Lisbon	1c	N09065	1142.309	CMG.	1	S10035
					(jammer for WQBA)		
764.0007	Sotten	1c	N09065	1155.231	YSCF	1	S10035
764.2846	Dakar	1d	N09055	1160.905	GMAD	1	S10035
764.285	Dakar	1	S10035	1174.723	TI..	1	S10035
					(not TIGA)		
765.046	YSKL	1	S10035	1232.0000	Kosice	2c	N09075
774.983	RUnc	1	S10035	1264.9856	Paradi	2c	N09075

774.983	RUnc	1	T10035	1267.9990	Neumun	1c	N09075
782.0010	Mirama	1c	N09075	1286.0097	Portug	1c	N09075
782.0015	Mirama	1c	N08295	1286.0105	Portug	1c	N09045
799.993	PJB	1	S10035	1286.0001	Prague	1c	N09045
818.0373	Rabat	1c	N09065	1286.0027	Tel Av	2c	N09045
818.0383	Rabat	1c	N09075	1294.949	Plata	1	S10035
818.0383	Rabat	1c	N09075	1374.9987	SPierr	1c	N09045
818.005	Rabat	1	S10035	1438.9997	Luxemb	2c	N09045
824.931	TIOS	1	S10035	1524.508	TIBEAU	1	S10035
825.034	HOS56	1	S10035		columns:		
834.010	Belize	1	S10035		kHz kiloHertz, E Error Brac-		

ket, Ident Identifier, MMDaY Monitor/Month/Day/Year.
Error brackets: 1 (plus/minus 1 Hz), Schatz;
Nelson: digit indicates number of measurements averaged
per PFM; letter indicates maximum possible error accord-
ing to code i.e. b, equal to or less than 0.2 Hz; c,
0.3 Hz; d, 0.4 Hz. Underlining indicates short-term
frequency variation observed.

Monitors: N, Gordon P. Nelson, 48 Hardy Avenue, Water-
town, Mass. 02172, U.S.A.; Equipment, R-390/URR,
R-392/URR, HQ-180; LFE 501A laboratory frequency
counter; modified BC-221 transfer oscillator; HP-100
high precision frequency standard; FET altaimuth
loop.

S, Ronald F. Schatz, Box 592814, Miami, FL
33059, U.S.A. (Uleta, Florida); Equipment, IB-101
frequency counter, IG-102 transfer oscillator, low-
frequency stable crystal calibrator.

T, Taylor Till next number 73 de *Pamle*

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THE INTERNATIONAL RADIO CLUB OF AMERICA, INC.

A non-profit club devoted to listening to distant radio
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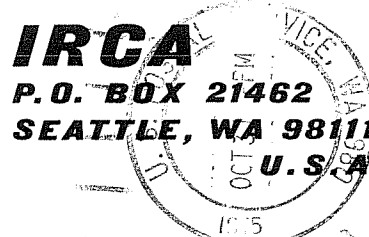
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