DX NEWS

The magazine of the National Radio Club

SINCE 1933

Volume 57, No. 4 - Monday, Oct. 30, 1989 (ISSN 0737-1659)

Inside ...

DX test ...

WYST-1010, Baltimore, MD is conducting a DX test for the NRC on Monday, November 6, 1989 from 0330 to 0400 ELT, at 1000 watts non-directional. Send reports, and return postage, to Mr. Dan O'Neil, Program Director, WYST-AM - 1111 Park Ave., "The Penthouse" - Baltimore, MD 21201. Test arranged by Bob Harrison and the Colorado CPC Machine.

From the Editor ...

For the first time since last spring we're running a little light on member contributions this time, but that gives me a chance to drop in a longer article by Graham Maynard which has been waiting in my file basket since last summer. Feedback (light as it was) seems to indicate that most of you, especially those of you involved in broadcasting, enjoy reading the clippings, especially news of small-town stations which do not receive coverage in the trade papers. On the other hand, you'll find the longer clippings only when I don't have enough member contributions of DX happenings to fill the pages - so warm up those receivers and see what you can hear!

I received a package last week from my aunt, who grew up in Tecumseh, NE. Seems that her brother was a DX'er in the early days of radio and kept a log of what he heard dating back to 1922, plus miscellaneous clippings. Thanks to her generosity, I am now in possession of Max Henry Watkins' log, which contains entries like this one: "Dec. 29, 1922 - WTAU, Radio Sales Dept., Ruegg Battery & Electric Company, Tecumseh. Dec. 28: Called 9DCG-9DMC-9DPF-9BSQ. Phone. Dec. 29: concerts 7:00 pm to 7:45 pm, 10:20 pm to 10:40 pm. KDKA, Pittsburg[h], Penn. Jan. 17, 1923: 9:00 phone; Jan. 26, 8:10: talk, music. KFCF, Walla Walla, Washington, Apr. 11, 1925: 2:00 am: Bluejay's program. Signed off about 2:08. Fire song: siren & bells. Guy cries "Water!" Play music, repeat. WJAQ, Capper Publications, Topeka, Kansas. Feb. 3, 1923: 7:14: music. May 24, 1:02: markets." Naturally, I'm in hog ... er, radio ... heaven! 388 stations heard through 1927 (ending with WREN, Lawrence, KS!) fill the log, which is in a hard-back ledger. We'll be sharing some of the listings from time to time, and the space fillers that you'll see came from *Radio News* clippings.

DXChange ... John H. McVay - 6405 West Home Ave. - Worth, IL 60482 would like to buy a Kenwood R-300 or Panasonic RF-2200. Give him the condition, price, and shipping cost on the first letter.

Catalog ... DX Radio Supply - P. O. Box 360 - Wagontown, PA 19376-0360 sent me a catalog last week. They sell only radio books, and the listing is quite comprehensive.

DX Time Machine
From the pages of *DX News*

Twenty-five years ago ... from the Oct. 24, 1964 DX News: 21-year-old Jerry Conrad, Lexington, KY checked in for the first time, listing such catches as (10-2) CSA2-665 Lisbon, 6:45 pm; (10-5) KRDS-1190, Tolleson, AZ, 1:05 am; WJCO-1510, Jackson, MI, 1:40 am; KWOA-730, Worthington, MN, 6:45 pm; (10-8) BTM-701 Sebaa-Aioun, Morocco, 6:55 pm; RNE-684 Madrid, Spain, 7:10 pm ... Stan Morss found no claimers on the lollipops left over after the Buffalo convention.

Ten years ago ... from the Nov. 12, 1979 DXN: Ted Fleishaker's "The Big Band Stand" was accepted by NPR for national distribution, prompting him to take a few weeks off ... Gene Martin logged Shanghai, China, on 1044 (10-18) 1245-1325; country #69 from Denver ... Bill Bailey, Holden, MA bagged Algers-1424 Algeria (10-22) from 2230-2330 ... Dallas Lankford listed nine "Easy" TA's which could be heard from northern Louisiana ... convention photos showed your editor when he still had hair!

AM Switch

Jerry Starr
c/o WHOT Radio
4040 Simon Road
Youngstown, OH 44512-1320

Status changes in AM stations, supplied by the FCC and NRC members

CALL LETTER CHANGES

None!

APPLICATIONS FOR NEW STATIONS

None!

GRANTS FOR NEW STATIONS

1100 NV Las Vegas: 50000/1000 U4

APPLICATIONS FROM EXISTING FACILITIES

810 WDDD IL Johnson City: night power to 300 watts
1440 WFTQ MA Worcester: antenna to U2
1560 KZIZ WA Sumner: power to 5000 watts

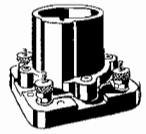
GRANTS TO EXISTING FACILITIES

540 WYLO WI Jackson: power to 400 watts
560 KWTO MO Springfield: changes in antenna system
830 WGBV GA Lithia Springs: city of license to Smyrna, GA, relocate XR, powers to 50000/5000 (10000 CH) (CP, not yet on the air)
1050 KNOB CA Frazier Park: power to 10000 watts, relocate XR (CP)
1080 WRYT IL Edwardsville: relocate XR
1110 KRCX CA Roseville: changes in antenna system
1220 WREV NC Reidsville: power to 10000 watts, antenna to D3
1290 WHGR MI Houghton Lake: power to 4600/4900, relocate XR
1370 WXXI NY Rochester: changes in antenna system
1440 KQRS MN Golden Valley: changes in antenna system
1470 CKO PQ Pointe Claire: to 650 kHz with 10000/2500 U4
1550 KOZR CA Apple Valley: antenna to D3 (CP)
1580 KNIM MO Maryville: power to 1000 watts
1590 WONX IL Evanston: day power to 3500 watts, antenna to U4

OTHERNESS

680 WLSY KY Newburg: new station is ON THE AIR with Talknet
720 *App CA Atascadero: application for new station DISMISSED
820 WAPO TN Jasper: new station is ON THE AIR with Contemp Christian
850 CKBA AB Athabasca/Barrhead: new station is ON THE AIR, although the CRTC has released no such change, they ID on the air as Barrhead, AB. Towns are about 60 miles apart
1090 WKSP SC Kingstree: FCC has initiated proceedings to decide if this station's license should be revoked due to the major owner's felony conviction for drug dealing stating that such a conviction raises questions of character qualifications under its 1986 policy statement on such circumstances
1250 WREN KS Topeka: the confusion continues. Following a recent report that the deal to move KTOP-1490 to this facility had fallen through, we now hear that this deal is on again. More when (and if) it happens.
1320 CJSO PQ Sorel: station is SILENT again, this time permanently as their operations have moved to FM only
1340 WBCR PA Wilkes-Barre: silent station is back ON THE AIR with REL programming. Their announced address is the same as WSCR-1320 in Scranton, PA

1480 WRDW GA Augusta: station is SILENT, reported to be temporary
1560 KBRL NE Imperial: as a follow-up to the question posed three issues ago, it appears that the CP for this new station has been CANCELLED, thus allowing KSWN-1300 to apply for KBRL as a new call
1570 WBUZ NY Fredonia: despite this station's infamous battle to keep their license and the FCC's final decision to revoke it, it was still on the air as of mid-October as confirmed by monitoring in Fredonia. Evidently the FCC has granted them a certain grace period in which to wrap up business. Since the FCC (and all available paths of appeal) refused to allow the owners to sell this station, we expect to be reporting it as silent permanently in the near future. Log this one while you can!



EDITORIAL COMMENT: Regarding the above situation at WKSP-1090, while the FCC didn't ask US, we'll offer our personal opinion. Any person convicted of drug trafficing should suffer immediate removal of their station license, and it's a shame the penalities cannot be made even more severe, like being hung up by some very painful part of the anatomy!

THANKS to the following contributers: CHARLES REH, DICK TRUAX, BILL HALE, GEORGE VANISH and WAYNE HEINAN (who visited here at AM Switch Corporate Headquarters last weekend)

73 and Good DX, Jerry & BKF Jerry Starr & Buffalo K. Foonman

I have about five or ten old car radios I would be willing to give away to anyone who might want to use one for BCB Dx. A few years ago I started picking them up at garage sales for next to nothing because I read in an IRCA or NRC article that they made fine DX rigs.

It seems that the better old car radios were designed to pull in stations far away. Because they operate in a shielded environment and must overcome alot of potentional interference,the better ones are terrific receivers.

Those that I am offering are all in working order,but will need a 12 volt power supply. You can buy those easily to power your CB at home. A speaker will also be helpful and if anyone wants a speaker let me know and I will include one. Antenna connections will require some fiddling,but anyone really interested in radio should have no trouble putting the package together.

All I ask is that you send me a few dollars to pay for postage. I will also enclose a copy of the articles I have.

If you dont want to go to the trouble of mailing off a few dollars and yet would like to give a car radio a try,look at your local Goodwill or other thrift store. I see them there all the time for about a dollar or two. Avoid the cheap MoPar sets and go for the better,older ones. You can tell by the construction.

Fritz Mellberg
Box 108
Hawarden,Iowa 51023

Domestic DX Digest - East

William Hale
734 Burleson
San Marcos, TX 78666

DX Catches in the Eastern U. S. and Canada, with 24-hr. ELT

MEDIUM WAVE rAMblings

■ Good to hear from all the DXers who have been dormant for awhile. Glad you're still with us. And to all you guys & gals who have never reported...we'd love to hear what's being heard in your part of the country. Like Maine. Why don't we ever hear from you? I know we've got members there, but not a peep. Same way with Mississippi & Delaware and...the list goes on. So why not jot down your DX and send it in?? Okay?

■ Please remember the few rules we have for reporting:

1] Use one side of the paper only. Do not use 3 x 5 cards.
2] Be sure your name appears on that paper.
3] Report in Eastern Listening Time. That's either Standard or Daylight, whichever is in effect. Regular loggings without time & date info will not be printed.
4] Keep your reports up-to-date. DX over 30 days old by publication date will be edited out.
5] Divide your catches into the categories seen here.
6] Use our standard abbreviations only.
7] Deadlines here are the masthead date minus nine days. That's means Saturdays.

That's about it. So let us all hear what you've been hearing.

SPECIAL

730 CHYR ON LEAMINGTON - **back on this frequency at nite** (CR-ON)
760 KRZN CO THORNTON - 9/24 0704 good with OLD mx; non-IDs as:*The all-new 760 KRZN*; new & CO #48 (SA-MB)
830 WWMO NC EATON - 10/13 2030 good with Panthers vs Wildcats HS FB; phone call brought info **they are on Friday nights only for field measurement purposes; soon to be 24 hrs with GOS, U2 (N/S pattern @ nite) 10000 1000**; WEDE on 1130 is still on with AC, but not sure of their fate after 830 goes on; NC #160 (CR-ON)
1190 WMAD WI SUN PRAIRIE - drops NOS/MoYL, **now news with CNN Headline News** (DS-WI)
1460 KGGO IA DES MOINES - 9/26 0336 fair→good over WBRN with AOR@94.9 FM; no CLs hrd, but **call change from KSO** per phone call to **Rick Dau** (DS-WI)
1540 KTGG MI SPRING ARBOR - ATTN:**Robert Kramer!!** your catch of WTGG on 9/17 **was probably not them** with data you reported (Issue 2); as of a recent trip to Michigan, they were still KTGG, as well as being owned by a fundamentalist-type bible college, they are strictly REL formatted; can't imagine them with SIDs & OLD; suspect you heard someone else; format doesn't match their FM either, even if they were simulcasting (STARR)

UNIDs AND UNIDs IDd

1180 UNID ?? - 9/24 0730- fair with EZL instrumental mx; no ads, no IDs; faded @ 0750 (SA-MB)

HEY, LOOK, A DX/EQUIPMENT TEST

1330 WASA MD HAVRE DE GRACE - 9/22 0237-0256 fair with *This is a test from WASA, Havre de Grace*; mx by female Christian group (TC-NY)

TIS & OTHER

1610 WSNX MI MUSKEGON - 9/18 0640 fair with *The New Sunny FM*, wx for Muskegon→ROK mx (SA-MB)

MIDNIGHT TO MIDDAY

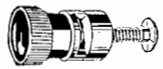
580 KALB LA ALEXANDRIA - 10/8 0723 ads for muffler shop & Alexandria Mall (KVJ-GA)
590 CKRS PQ JONQUIERE - 9/11 0003-0007 poor with nx & sports in FF, CHR in EE; *CKRS* jx in FF (TC-NY)
610 WDAF MO KANSAS CITY - 9/24 0711 with *WDAF 61 Country* non-ID, local ads, C&W mx; good, but in CKRC slop (SA-MB)

640 KFI CA LOS ANGELES - 10/12 0715-0745 XLNT with America in the Morning from MBS; lotsa *KFI's* during breaks and ment of *Southern California weather*; the best I've ever hrd them [Ed.-TX]
690 WPDQ FL JACKSONVILLE - 9/22 0142-0215 XLNT with *This is WPDQ, the Mighty 690, the stn the Southeast grew up with* on 50Kw U1 for Hugo coverage (TC-NY)
740 WDFZ TN TULLAHOMA - 9/26 0400-0600+ poor→good→very good with SMN OLD, occasional *2-74* non-IDs; *WFDZ Tullahoma playing a better variety of your favorite hits* ID→SNN Nx @ 0600; 10 watts?! (DS-WI)
840 KWPN NE WEST POINT - 10/12 0745-0756 surprisingly good with many CL and West Point ments, C&W mx, local ads [Ed.-TX]
870 KPRM MN PARK RAPIDS - 10/3 0643 good with sign-on info for KPRM-AM & KDKK-FM (correction of my incorrect logging previously); the quite often use KDKK IDs (SA-MB)
920 WAFS GA ATLANTA - 9/24 0200 fair with ID (RK-IL)
WBAA IN WEST LAFAYETTE - 10/3 0659 good with sign-on (RK-IL)
KDHL MN FARIBAULT - 9/24 0205 good with sign-off (RK-IL)
1060 WCFB MS TUPELO - 9/29 0700 poor with sign-on (no SSB) over WRCW; sign-on annct began with *Good Morning and welcome to another day of Christian programming...on WCFB, Tupelo. We urge you to tell a friend about our. ..(rest lost to static burst)*→morning sermon (CR-ON)
1150 WXGO GA Fort Valley - 9/30 0638 on top with B:GOS mx followed by ad for their Winter Geese Special, for only $14.95, you get 100 baby geese (and I always thought they were goslings); address same as in Log (CR-ON)
1220 WSLM IN SALEM - 9/27 0700 fair with sign-on (RK-IL)
WLSD VA BIG STONE GAP - 9/25 0600 fair with sign-on (RK-IL)
1320 WWWT VT RANDOLPH - 9/29 0300 poor with non-ID:*24 hours a day, AM 1320, 3WT, Vermont* (TC-NY)
1330 WEYZ PA ERIE - 9/23 0038-0056 with NOS, *Spend your day on Cloud Nine on 1330, WEYZ*; good with mild WWRV QRM (TC-NY)
1340 WTRC IN ELKHART - 10/5 0111 fair with sign-off (RK-IL)
WNBS KY MURRAY - 9/24 0200 fair→poor with sign-off (RK-IL)
WLZR WI MILWAUKEE - 10/1 0212 briefly atop the mess with *Laser-103* non-ID & contest promo for trip to Houston→rundown of upcoming artists to be played that hour→ad for what sounded like The Super Store in Milwaukee; also hrd unn WLBC-IN with ROK; Log sez 2400 (+1) sign-off, but sounds like they're AN (CR-ON)
1350 KRNT IA DES MOINES - 9/26 0525-0530+ fair with promo for KC Royals BB @ 0528; 0530 *1350 KRNT Des Moines* ID→local nx (DS-WI)
WRAP VA NORFOLK - 9/4 0238-0300 good with *Maximum Music, WRAP*; UC; ex:850 (TC-NY)
1370 WGCL IN BLOOMINGTON - 10/2 0600 fair with full ID (RK-IL)
WTKY KY THOMPKINSVILLE - 10/2 0700 fair→good with sign-on (RK-IL)
WSPD OH TOLEDO - 9/16 0200-0204 poor with *News Radio 1370, WSPD, Toledo* (TC-NY)
1390 WMZQ VA ARLINGTON - 9/10 0041-0100 with C&W mx, *98.7, WMZQ-FM Washington & 1390, WMZQ, Arlington*; XLNT in WFBL null (TC-NY)
1410 WQBQ FL LEESBURG - 10/4 0606 with ROK OLD, *1410-WQBQ & Your radio station, WQBQ* (KVJ-GA)
WDOE NY DUNKIRK - 9/17 0103-0138 *You're listening to the station with the songs you know, 1410, WDOE*; fair with WPOP QRM; MoYL (TC-NY)
1420 WADS GA TRENTON - 10/7 0730 with Georgia Radio Newsm GOS mx & ad for *Edna's Dairy Bar atop Sand Mountain*; much wanted here, one of my closest unherads (KVJ-GA)
1440 WLXN NC LEXINGTON - 10/7 0816 with Maryland FB promo (KVJ-GA)
1470 WXKW PA ALLENTOWN - 9/16 0120-0146 with *All Star Country on Lehigh Valley's WXKW*; XLNT, no CHOW (TC-NY)
1490 KCID ID CALDWELL - 9/24 0810 good with mix of current hits & OLD + *KCID 1490 Radio* non-IDs between tunes (SA-MB)
1550 WOKJ MS JACKSON - 9/26 0305-0330+ fair→good with AOR; 0330 *WOKJ Jackson* ID, frequent *K-Rock* slogans; over another ROK stn, probably KKJO (DS-WI)
WOKJ MS JACKSON - 10/4 0700 fair with sign-on (RK-IL)
CBE ON WINDSOR - 10/4 0700 fair with sign-on (RK-IL)
1560 WINV FL INVERNESS - 10/4 0600 with sign-on, XLNT signal; slogans:*Classic Country & Citrus County Country* (KVJ-GA)
KCJJ IA IOWA CITY - 9/26 0510-0520 good→poor over WQXR; 0513 *KCJJ time is 4: 13* TC→sports, wx, AC (DS-WI)
WSLA LA SLIDELL - 10/4 0550 with long string of sports program promos, including Houston & New Orleans BB; *Your sports leader in southern Louisiana* (KVJ-GA)
1570 WBGZ IL ALTON - 9/26 0700 fair with sign-on (RK-IL)
WLBQ KY VANCEBURG - 9/28 0700 fair with sign-on (RK-IL)
WFUR MI GRAND RAPIDS - 9/28 0600 poor with sign-on (RK-IL)
CKMW MB MORDEN - 10/1 0817 strong with German language pgm tha's on Sundays for 30-60 minutes (SA-MB)

MIDDAY TO MIDNIGHT

560 WQAM FL MIAMI - 9/22 2314-0004 XLNT with *You're in tiuch with the WQAM Sports Exchange*; mild WEAZ QRM (TC-NY)
780 WNAK PA NANTICOKE - 9/16 1912-1915 fair with:*It's time for WNAK to leave the air*→sign-off with *Sleep in Peace* (TC-NY)
830 WRFM FL HIALEAH - 10/1 1945 weak but alone with church service & traditional Christian hymns all in SS; ran past the hour but had voice-over ID by female in EE @ 2001:*This is WRFM-AM, Hialeah, Florida*; luckily Taino, who had been coming on @ 1940 with OC & sign-on @ 1959 during September didn't show up this evening; also Log has Hialeah spelled with too many h's, so change your Log and get the 'h' outta there, hi; FL #145 (CR-ON)
870 KAAN MO BETHANY - 10/5 1945 poor with sign-off (RK-IL)
990 WALE RI PROVIDENCE - 10/1 2029-2056 just returned to the air after XR trouble; *You're on ALE with Tim* (Tim Horton talk show); XLNT; ex:WEAN (TC-NY)
1000 WZTN AL MONTGOMERY - 9/28 1955 poor but on top with B:GOS mx followed by TC & CL→prayer & scripture reading with organ mx background 'til 2005 fade during which, I believe, it either had sign-off or went to PSSA, if they have one (CR-ON)
WIOO PA CARLISLE - 9/29 1953-2000 fair with sign-off:*So ends another broadcasting day, WIOO, Carlisle* (TC-NY)
1020 WPEO IL PEORIA - 9/24 2031 good with sign-off (RK-IL)
1030 KCTA TX CORPUS CHRISTI - 9/24 2031 good with sign-off (RK-IL)
1060 WMCL IL MC LEANSBORO - 10/4 1912 fair→poor with sign-off (RK-IL)
1080 WDJX KY LOUISVILLE - 9/25 2041 fair with phone call + FM ID (RK-IL)
1090 WGLC IL MENDOTA - 10/4 1916 good with sign-off (RK-IL)
WFCV IN FORT WAYNE - 10/5 1930 fair with sign-off (RK-IL)
WMYD WI RICE LAKE - 10/5 1930 poor with sign-off (RK-IL)
1100 KKLL MO WEBB CITY - 10/7 1843 Inspirational mx until sign-off, with mention of KKLL-FM 95.1 (KVJ-GA)
1140 WIXC AL HAZEL GREEN - 10/5 1915 fair with sign-off in WJJD splash (RK-IL)
1180 WXLA MI DIMONDALE - 10/1 1930-1937 fair with UC (format change?) to sign-off @ 1937 (DS-WI)
1460 WPRW VA MANASSAS - 9/29 2007-2032 good with *High school football game of the week on WPRW*, Stafford vs ?Alvin Park (TC-NY)
1490 WLFN WI LA CROSSE - 10/1 2030-2035+ fair in WTDY splash with OLD; 2034 *DJs for hire* ad, phone# 782-8385 (DS-WI)
1530 WKDC IL ELMHURST - 9/24 1859 XLNT with sign-off (RK-IL)
1540 WSMI IL LITCHFIELD - 9/29 1955 good with sign-off (RK-IL)
KCTO LA COLUMBIA - 9/25 2016 poor with sign-off (RK-IL)
1560 WSQR IL SYCAMORE - 9/24 1900 with sign-off (RK-IL)
1570 WFEL MD TOWSON - 9/21 1849-1912 good with *Baltimore's Christian Connection, WFEL* (TC-NY)
WMYM WI MINOCQUA - 10/1 2004 with *Lakeland Area Wx* (70°) *On the station that makes your memories, WMYM*; fair with heavy QSB (DS-WI)
1580 WAMJ IN SOUTH BEND - 10/1 1945-2003 fair→poor with talk:*WAMJ Talkradio 1580* promo with Tom Snyder; South Bend-Mishiwaka ID @ 2000→Mutual PM Nx (DS-WI)

REPORTERS:



DS-WI **DOUG SMITH**//Madison, WI//Superadio II
RK-IL **ROBERT KRAMER**//Chicago, IL//R-1000, HQ-129X + RW Loop, Kowalski Loop
TC-NY **TONY CASAMASSIMA**//Carmel, NY//
CR-ON **CHARLES REH**//Leamington, ON//R-390A, S-40A + Sanserino Loop, 40" phased loop, TR-3000 open reel
SA-MB **SHAWN AXELROD**//Winnipeg, MB//R-70 + 3' box loop or 100' LW
KVJ-GA **KARL JETER**//Stone Mountain, GA//HQ-150, Sangean ATS-803A + 4' loop
STARR **JERRY STARR**//Hubbard, OH//

SOME ABBREVIATIONS & SPECIAL SYMBOLS USED IN DDXD-E

TT:test tones OC:open carrier TC:time check RS:regular schedule QRM:interference QTH:location SID:singing ID CID:code ID jx:jingle mx:music nx:news wx:weather

SSB:Star Spangled Banner LSR:local sunrise SRS:sunrise skip LSS:local sunset SSS: sunset skip PSRA: Pre-Sunrise Authority PSSA:Post Sunset Authority HS:high school FB:football BB:baseball HKY:hockey BKB:basketball :00: on the hour ||:parallel with →:to or into $:stereo SS:Spanish FF:French EE:English POL:political GOS:gospel REL:religion or religious AC:adult contemporary BBD:big band OLD:oldies ROK:rock 'n' roll CHR:contemporary hit radio

Need to renew? Expired? The mailing label will tell you.

73, Bill

Domestic DX Digest - West

Wayne Heinen
4131 S. Andes Way
Aurora, CO 80013

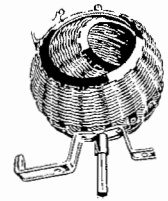
DX Catches in the Western U. S. and Canada, with 24-hr. ELT

Deadlines are Saturdays two weeks before Topeka deadline.

Midnight to Noon

690 KPET TX Lamesa
10/9 0453 fair w/ C&W mx. "The sports authority for (?) county, KPET". New, TX #76. (JT-CO)
870 KROL NV Laughlin
10/9 0100 fair in slop from KOA w/L.A. Kings Hockey Net. (JT-CO)
930 KLCY MT East Missoula
10/9 0100 ID: "Classy 930 is KLCY, East Missoula"; then back to synd pgm "Super Gold". Fair in WKY null w/QRM de KSDN, CJCA, others. New, MT #14. (0W-CO)
1010 CFRB ON Toronto
10/9 0521 "This is CFRB with The World at Dawn". New, ON #8. (JT-CO)
1230 KFUN NM Las Vegas
10/11 0103 S/off anmt by ancr "Michelle", no SSB. Fair o/QRM. Unneeded. (0W-CO)
1340 KROC MN Rochester
10/9 0405 fair w/ID: "This is AM 1340, KROC in Rochester", then into LK show @ 0406. New, MN #15. (JT-CO)
1370 CFOK AB Westlock
10/9 0546 fair w/KSOP. "This is Central Alberta Nightwatch", then into "Goodtime Charlie". New, AB #19. (JT-CO)
1450 KFIZ WI Fond du Lac
10/9 0259 Barely thru QRM with "a message from the Ad Council", then ID: "This is Fond du Lac, AM Stereo..." & lost to QRM. At over 1000 miles, this is one of my all-time best GY catches! New, WI #9. (0W-CO)
1550 KSFT MO St. Joseph
10/9 0232 Ai nx, then C&W mx, "Hit Kickin' 1550" slogans. Good on peaks in KQWB null. (0W-CO)

Noon to Midnight



1130 WDGY MN Minneapolis
10/13 2207 good u/CKWX w/ID then into LK. New, MN #16. (JT-CO)

UNIDS

1570 UNID
10/13 2345 "The New 1570, EZ AM". Strong in XERF null then faded quickly. Any ideas? (JT-CO)

Contributors

(0W-CO) John Wilkins /Wheat Ridge, CO /R-1000 w/ 3 foot loop
(JT-CO) Jeff Tynan /Parker, CO /Sony-2002 w/JT5 Loop

CITY QUIZ

John S. Bowker, Valparaiso, IN

QUIZ # 36

Only one city in the United States has stations operating at the five dial positions shown below. Of course, there may be other stations in this city too! Can you spot the city?

710 1140 1240 1430 1530

Here is a hint; it is one of these: Sacramento, Cincinnati, Kansas City
(The answer will appear at the end of the next City Quiz in DX News.)
The answer to City Quiz #35 Tampa

Formats

Tony Fitzherbert
356 Jackman Avenue
Fairfield, CT 06430

Changes in programming status; reported by NRC members and others

There are a few new developments on the AM dial in my back yard. WADS - 690, in Ansonia - Derby - Shelton, in the Naugatuck River Valley (north of Bridgeport) has dropped its AC format, and is now an ethnic station, simulcasting WACM - 1490, in West Springfield. The owners of the latter have now managed to cover both the Hartford - Springfield area and New Haven - Bridgeport area with its signal. This is the second of two pairs of stations to do so....1380 in Naugatuck and 1230 in Manchester did the same about six months ago, offering Spanish to both the Springfield - Hartford and Waterbury markets.

WMMM-1260, in Westport has dumped FBN Business bibble and has reinstated its fine oldies format. Hopefully the dabble into being an audio Wall Street Journal (which is a fine newspaper, but solid business news on the air is a bore) did not hurt them. And 50's and 60's rocker WMCA - 570, in New York is now a religious outlet. Al Holtz, in Philadelphia sends word that in November, Black standards WHAT - 1340 will become all talk. The station, which has been sold, seeks to change the call to WKBT-AM, which stands for the first names of the new owner's three children.

The contributers for this issue are Geov Parrish and The M Street Journal. How about some other contributions for FORMATS!!!??? We thank both our contributers greatly, and would love to hear from other areas of the country, and other people. Remember, this is YOUR column and YOUR club!!!! Here we go....

560	WASG	AL	Atmore	- CWM (M).
560	WOOF	AL	Dothan	- SMN CWM (M).
580	WBIC	AL	Tuskegee	- UC//FM(M).
600	KHTE	CA	Redding	- SMN pure oldies (M).
690	WADS	CT	Ansonia	- Ethnic//WADM-1490 (TF).
740	WSBR	FL	Boca Raton	- Talk, business, sports (M).
750	KKNO	LA	Gretna	- New station, Black gospel (M).
810	WXLR	GA	Hahira	- New, REL "Light 81" (GP).
850	KGKO	AR	Benton	- Adult standards (GP).
850	CKBA	AB	Barrhead	- CWM//CFOK, 1370 and CKWA, 1210 (GP).
900	KALT	TX	Atlanta	- SMN CWM //FM (M).
920	WWSF	AL	Analusia	- CHR//FM (GP).
930	KRIA	TX	Terrell Hills	- Silent (GP).
980	WMAK	KY	London	- Silent, again (GP).
980	WFHG	VA	Bristol	- SMN pure oldies (M).
1050	CICF	BC	Vernon	- Ex-CKAC, CWM (GP).
1050	CHUM	ON	Toronto	- Now rock oldies(GP).
1220	WFWL	TN	Camden	- SMN CWM (M).
1240	WARF	AL	Jasper	- CWM//WFFN(M).
1240	WGCM	MS	Gulfport	- Rock//WTKI-FM (M).
1250	KTFJ	NE	Dakota City	- New, REL//FM (GP).
1260	WMMM	CT	Westport	- Rock oldies (TF).
1260	KVSF	NM	Santa Fe	- CWM//KNYN (GP).
1260	WJOT	SC	Lake City	- AC (M).
1280	WANS	SC	Anderson	- CHR//FM (M).
1290	KLLF	TX	Wichita Falls	- Spanish, REL (GP).
1310	KLIX	ID	Twin Falls	- SMN CWM (M).
1310	WCCW	MI	Traverse City	- SMN pure oldies (M).
1340	KSKI	ID	Hailey	- Transtar standards (GP).
1340	KMTW	NV	Las Vegas	- SMN Z-Rock (GP).
1340	KSYX	NM	Santa Rosa	- Silent (GP).
1340	WHAT	PA	Philadelphia	- To be talk in Nov (Al Holtz)
1340	WSSC	SC	Sumter	- Rock oldies (GP).
1340	WKGN	TN	Knoxville	- Black (GP).
1340	KOJO	TX	San Angelo	- Spanish (GP).
1350	KLYD	CA	Bakersfield	- Rock "13-K"(M).
1400	KIVR	OR	Cave Junction	- Silent (GP).
1410	WMML	AL	Mobile	- Urban "Magic 1410" (GP).

1420	KULY	KS	Ulysses	- SMN pure oldies (M).
1450	WJNX	MS	Jackson	- Rel, news blocks(GP).
1450	WBIG	NC	Gastonia	- Black//FM(GP).
1460	WAKS	NC	Funquay-Varina	- FBN Bus. NX> (GP).
1480	WABB	AL	Mobile	- CHR, Talknet//FM (M).
1480	WRDW	GA	Augusta	- Temporarily silent(M).
1480	KDBN	TX	Dallas	- Ex-KMEZ, FBN Bus. Nx. (M).
1490	WHBB	Al	Selma	- Oldies (M).
1540	KLAW	CA	Soquel	- SMN Kool Rock oldies (GP).

And that is it for now. Get your formats in, as over 700 of us await with held breath to see what dramatic and creative things your local stations are doing!!!

73's.

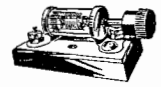
Verification Signers

Wayne Heinen
4131 S. Andes Way
Aurora, CO 80013

A listing of verification letter signers, contributed by NRC members

Freq.	*Call*	*Verie Signer*	*Contributer*
580	CKYlbu	Kim Topham ExSecy	JT
580	KUBCpu	C.N. Price CE	TH
640	WGSTl	Mike Lawing Facil. M	KJ
730	KKDApu	Paul N.Strickland CE	TH
730	WFMCl	Robert Y.Wooten	KJ
750	KOALpu	U/U M	JT
760	KRZNr	Bill Harris CE	WH
810	WQIZlb	Jody L. Johnson AccEx	0W
820	CHAMlu	Rob Meuser TD	KJ
840	KWPNm	D. Kelly	TH
860	WLBGru	U/U	0W
930	KlUPlb	John C.Morton CE	TH
1050	WFAMlbmu	Y. Wren	0W
1060	KYWqpu	E. Glynn Walden EM	TH
1060	WPHClh	Steve Kennedy KK4FB	KJ
1090	KYBGpu	Jeff Pinkerton CE	WH
1140	KGEMpbu	Cary Harrison TD	TH
1150	CKXlmb	Lawrence Dubois CE	WH
1180	KKARl	Allen Sherrill CE	TH
1180	WHJMlu	Gerry Morgan	KJ
1250	WBRMl	Annette Bryant P	KJ
1270	KDJIpu	Roy Roberts GM	TH
1280	WQUElbu	Richard J. Flora AE	0W
1290	WMVPpu	Duane Torrance	0W
1290	WNBNpu	Frank Rackley Jr	KJ
1310	WYNDl	John Beleskas OpD	KJ
1320	KAVIl	U/U M/CE	TH
1320	KVMCl	Jim Baum O	TH
1320	WAGGru	Jay Mitchell	0W
1330	KLBOlm	J.D.Wade GM	WH
1330	WKZDl	David Puckett M	KJ
1330	WLITlu	Randall Ramsey M	KJ
1350	WCOPlu	Bill Bruton M	KJ
1350	WDCFlu	Greg First PromoD	KJ
1360	KBUYl	Anita Drypolcher OfM	TH
1360	WBOBl	Carole Bonn PD	KJ
1360	WWKYl	U/U	KJ
1370	WGHCl	Wayne O'Kelley PD	KJ
1370	WLOVru	B.L.Williams M	0W
1380	KLUElu	Jerry Floyd OpM	KJ
1390	KJME	Ambres Neidig	WH
1400	KSIMpu	U/U GM	KJ
1420	KTJSq	A.R.Fuchs CE	TH
1420	WAOCl	Kenneth Stein P/GM	KJ
1440	KOPApi	Gary Jacques CE	TH
1440	WGIGl	Bill E.Gronroos PD	KJ
1440	WGIGluz	Ron Griffin VP/GM	0W
1440	WMDJl	William J. Marshall AE	KJ
1450	WFIXlu	George Ikard OpM	KJ
1460	KKCSc	Melvyn Rauh CE	TH
1470	WTOEl	Bruce Ikard OpM	KJ
1500	WSMXpu	Ray E. Testerman CE	KJ
1520	WEXYfbuz	Juno M.Beattie P	0W
1540	WOGRl	Wayne Hammond GM	KJ
1560	WCNWl	Marcy Baldwin	TH
1560	WINVl	Robert G.(Jerry) Webb	KJ
1610	KOP737p	L.Greer Price	TH

Initial	Name	Loc
0W	John Wilkins	Anywhere USA
JT	Jeff Tynan	CO
KJ	Karl Jeter	GA
TH	Tim Hall	CA
WH	Wayne Heinen	CO



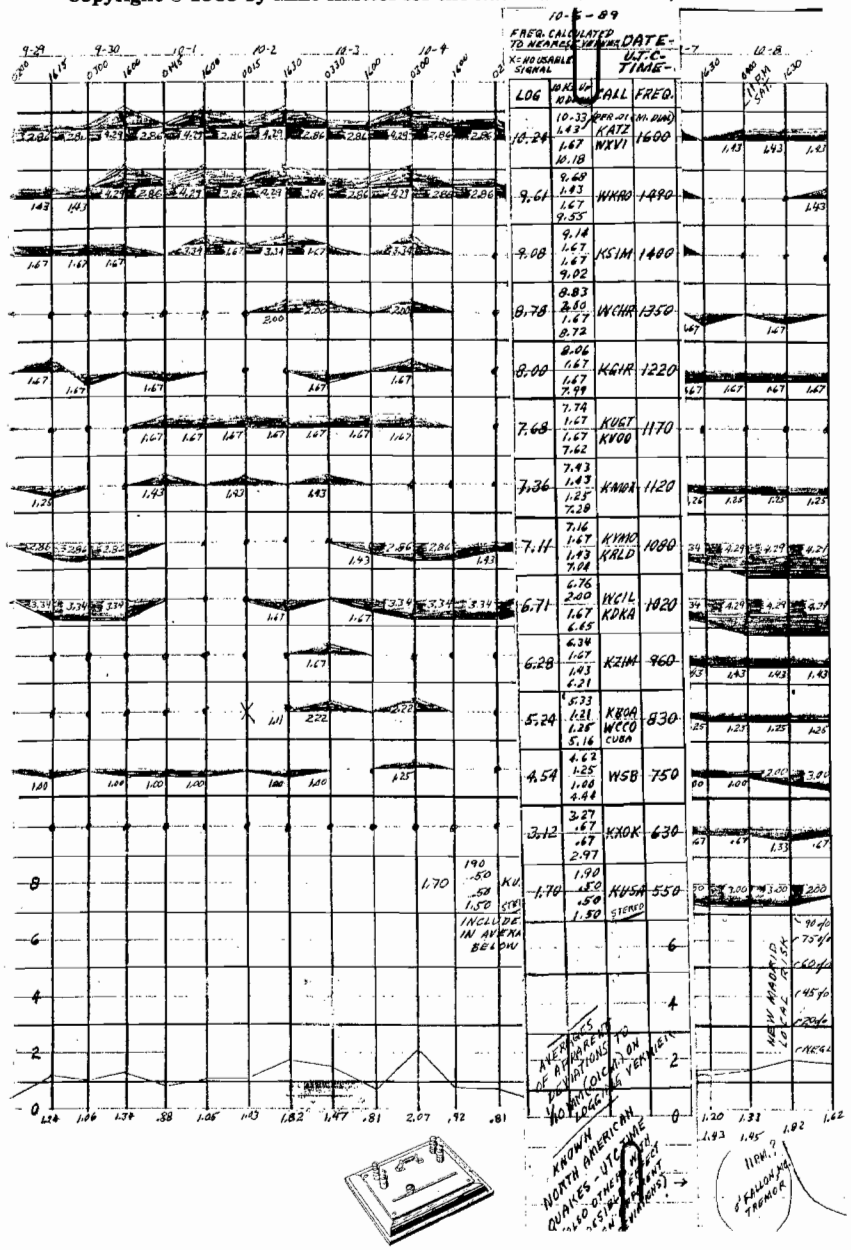
Join the verification game!

Now, you can help out with station tests. Here's how: Send Wayne Heinen - 4131 S. Andes Way - Aurora, CO 80013 two 25¢ stamps per station, and Wayne and Jeff Tynan will print and mail an effective test request letterfor you. You can either specify station and time, or just take pot luck. Increase your veries and help other NRC'ers at the same time ... join the verification game!

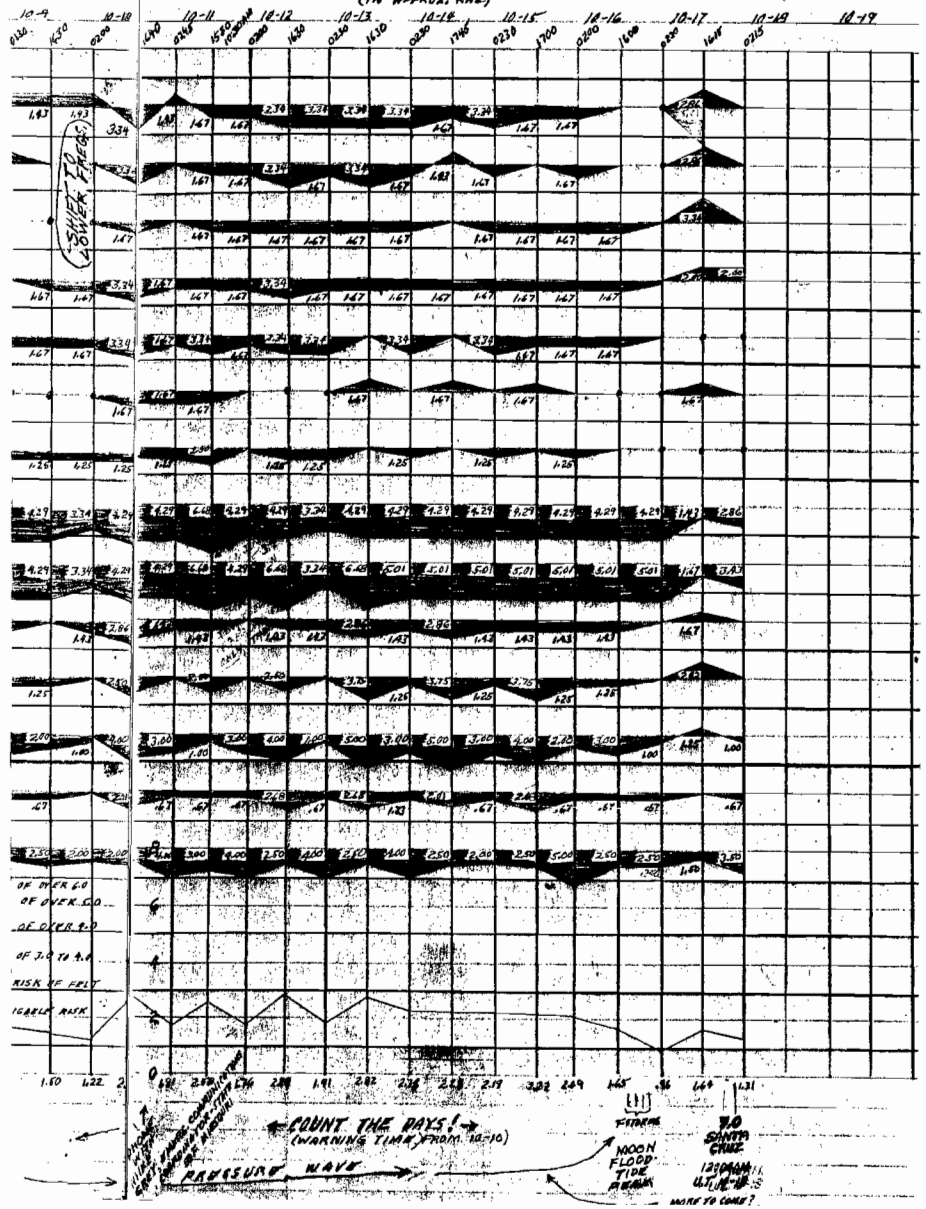
Frequency Deviations

Raymond F. Cole
Rt. 3, Box 304
Cape Girardeau, MO 63701-9543

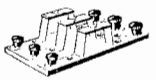
Observations of measured frequency deviations and associated activities



APPARENT TUNING FREQUENCY DEVIATIONS
(IN APPROX. KHZ)



The following notes have been extracted from a series first published by the UK's Medium Wave Circle. They condense the author's work and outline a system that has remained unchanged and running for over three years - an indication of satisfactory signal gathering and noise isolating capabilities.



Medium Wave a practical approach.

by Graham Maynard

During the last twenty years I've tried bipolar, fet, integrated circuit and battery valve designs with inductive, crystal, ceramic and mechanical filters, balanced mixers, differential stages etc., but for serious DXing I use an old fashioned valve set, a fifties, Collins R390-A military detailed receiver. Indeed, was it not power, size and weight disadvantages that started the thermionic decline and not failings in attainable performance? There's no going back however, progress is the reality, but Oh how it costs! And, until I am able to find a modern receiver capable of good MW performance my choice remains limited to secondhand professional valve gear.

I often wonder just how much useful information and knowledge is "lost", stored in books and old files, and how often "new" discoveries have turned out to be older than the people that have made them. Of recent years MW technology has advanced little, pushed aside by ssb, vhf, tv and other electronic development, but we must not allow useful experience to lie dormant, we must re-state the relevance of established information.

I found particularly interesting "Working with the Ethodyne Receiver" by John Heys G3BDQ, P.W. Jan 86, which outlines some early 20's work by staff at the Burndept company. A Burndept receiver holds the distinction of being the first to receive an American broadcast in Europe, i.e. a broadly cast programme rather than an individual transmission. At 01:30 hours on 26th. Nov. 1922 WJZ New Jersey was heard at Blackheath, London by Mr. J. H. D. Ridley of the Burndept Company. Ref*1. He used a Dictaphone to record one of four American stations received on many nights during that winter and logged fifty-two American morse transmitting amateurs using 70 to 750 Watts. During 1922 British amateurs were allocated 150 to 200m. and 440m., broadcasters 350 to 425m. and shipping 300 and 600m.

Application of these notes should afford improved medium wave reception with almost any receiver, though not all receivers are suitable for medium wave work. Latest models have fantastic book specifications but their medium frequency off air performance might be no more satisfactory than that of a well used, reasonably priced set some twenty, thirty or even forty years old. Guard against disappointment by seeking recommendations, and when possible ask for a home trial before buying. Search for internal images and spurious responses of powerful locals at mid-day, check strong signal handling characteristics after dusk and use the dawn period to reveal cross modulation or inadequate dynamic range effects.

We are trying to discriminate really minute signals therefore it is most important that antenna emf is fed to the receiver with respect to antenna ground, not with respect to receiver ground. Nor should antenna ground be used to "earth" a mains powered receiver, a separate ground should be used with electrical and spatial isolation between them.

Screened coaxial cable is a good feeder for transfering antenna/ground emf to the receiver, and though it behaves like a shunt to low and medium frequency wires it cannot be shortened without bringing the antenna back into noise. Single coax can not be grounded at both ends as earth loop noise on the outer is transferred to the inner; makes a quiet neighbourhood sound electrically noisy. Balanced arrangements are inherently noise cancelling though more expensive and, depending on the receiver, require one or two matching transformers at cable ends. Ref*6.

Coaxial cables are low impedance by nature, whilst long and medium wave antennas, excepting single turn loops, tend to be of medium or high impedance. When antenna and ground are connected directly to a coaxial cable charge flow within the coax is severely damped and emf at the cable ends is very low.

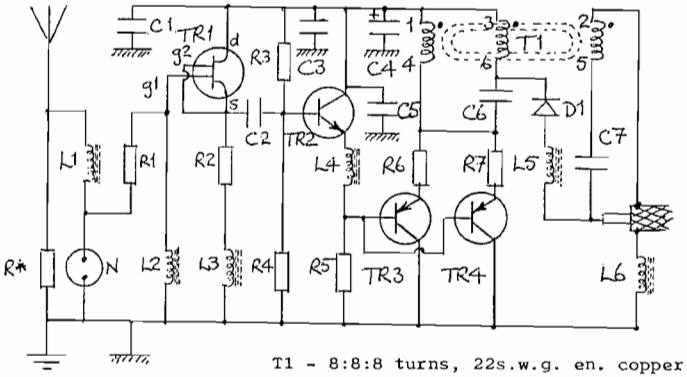
An impedance matching transformer between antenna/ground and the coaxial cable can optimise energy transfer, and at the same time, electrically isolate the antenna ground from feeder ground. This transformer is a step down type that lowers the system background noise floor yet raises emf transferred to the receiver.

A suitable 2.5cm. diameter ferrite ring core costs only £1 post from Electrovalue Ltd., 28, St. Judes Road, Egham, Surrey, TW20 OHB, Seimens part no. B64290K0618X830. It could be wound with 15 turns primary (antenna/ground) and 5 turns secondary (coax) of thin insulated connecting or 22.swg. enamelled copper wire. Try adjusting the numbers of turns whilst tuned to a signal between 900 and 1000kHz. A small price to pay for peace of mind and ear.

Coming back down the feeder, it is also important to match cable and receiver input impedances. Modern sets have 50 ohm, 75 ohm and balanced inputs capable of direct coaxial connection. Older sets were designed for use with medium impedance antennas and should not be directly connected to coaxial cable. There are two reasons for this; (i) optimum input gain and signal to noise ratio will not be achieved, and (ii) a strong adjacent signal can be directly imposed upon the first r.f. amplifier because input tuning is severely dampened by low impedance.

A second ferrite ring can be used for receiver impedance matching, Try 560 ohms in series with 20 turns between A and E, and 8 turns between coax inner and braid. This transformer and it's leads should be screened and positioned close to the receiver. If the receiver is mains earthed do not link the transformer E and braid connections, separately connect the feeder braid to a nearby earth stake. If the receiver is battery operated or not mains earthed link both E and braid to an earth stake. From here outwards the feeder can be any length, low loss coax is worthwhile when chasing very weak signals.

To ensure that antenna energy is not wasted in feeder cable or receiver circuits and is fully allowed to create r.f. signal voltage I decided to try an outdoor pre-amplifier capable of taking antenna/ground input and producing a 75ohm isolated output. The circuit is shown below. It covers medium frequencies with unity gain and has a dynamic range in excess of 120db. Any internal products have not been heard above received noise and the regional 1341kHz. 100kW. transmitter 20 land kilometers away is not a problem. Power consumption is 160mA. at 24Vdc., so it runs warm. All parts are available from Electrovalue Ltd.; their catalogue is free, just write.



T1 - 8:8:8 turns, 22s.w.g. en. copper.

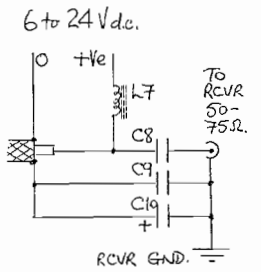
1 off 6k8 , ¼W, 5%.	R*.		1 off 470u, B78108S.	L1.
1 off 5k6 , ¼W, 5%.	R1.		1 off 10m , CH4.	L2.
2 off 1k , ¼W, 5%.	R2,5.		1 off 5m , CH2.	L3.
2 off 56k , ¼W, 5%.	R3,4.		1 off 100u, B78108S.	L4.
2 off 150R, ¼W, 5%.	R6,7.		3 off 2.5m, CH1.	L5,6,7.
4 off 100n, B32560.	C1,3,5,9.		1 off 40673.	TR1.
1 off 330p, B31110.	C2.		1 off BC337.	TR2.
2 off 100u, B41326.	C4,10.		2 off BD136.	TR3,4.
3 off 47n , B32560.	C6,7,8.		1 off 1N4007.	D1.

Neon SB1725. Core K0618X830. Board 21078. Box 21390.

Three design specifications for this active whip antenna are;-
(a) distant background noise received by the antenna during quiet periods must dominate system noise,
(b) input filtering should reduce high frequency response, so that signals received at the antenna's natural frequencies can not generate spurious amplifier products,
(c) signal handling capability to exceed 1V r.m.s. when feeding 50 to 75 ohm receiver inputs.

Signal freqency potentials develop across the antenna- L2- ground circuit, and are little affected by TR1 gate connection. Three stages of unity gain current amplification in TR1, TR2 and TR3,4 gradually reduce impedance. The output transistors TR3,4 share quiescent current and therefore operate with better linearity and lower temperature. Passive filters reduce gain beyond medium frequencies; low pass are (i) L1+R1 with the natural capacitance of L2+TR1, and (ii) L4. high pass are (i) natural antenna capacitance with R*+L2, (ii) C2, and (iii) C7. R* = 68k divided by the whip length in metres + or - 20%. The neon and R1 limit electrostatic discharge through TR1 substrate diodes.

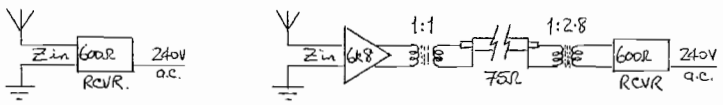
TR1 follows antenna potentials; TR2 isolates TR1 from variable impedance effects occuring within TR3,4 as slew rate and amplitude vary with signal; TR3,4 feed the trifilar wound 1:1:1 output transformer, T1, at 75 ohms via R6,7. To prevent feeder induced noise the amplifier chassis operates at antenna ground potential, isolated via L5 and L6. The isolated output winding of T1 connects directly to the feeder braid and signal is transferred by C7. T1 has two primary windings, with flux in parallel at RF but opposing at DC, so that core bias can not cause asymmetrical signal distortion. D1 prevents possible damage by accidental reversal of remote power supply connections.



Note the power supply and receiver termination arrangement. Current flow through L6 causes a potential difference between the feeder braid and antenna ground, therefore the braid should not be directly connected to a receiver, nor can the battery or mains powered supply be earthed. The shopping list may be copied and sent to Electrovalue Ltd. Matrix board layout is easy to follow.

Antenna and ground wires and the coaxial feeder pass through holes drilled in the plastic box. They are soldered directly to board pins and then sealed in place. The box should be mounted just above ground directly below the whip.

Comparing the antenna to receiver gain figures of straight and active systems we have;-



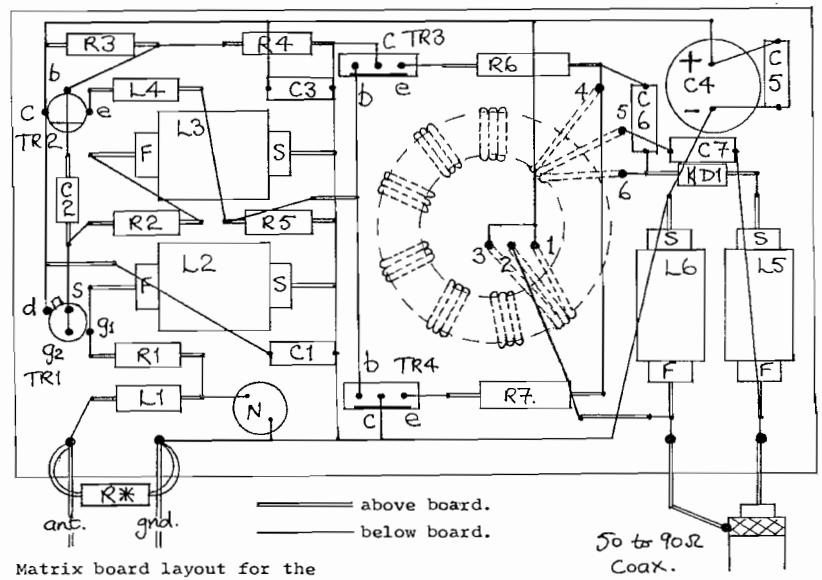
Gain of antenna into 6k8 ref. 600R	+7dB.
Amplifier gain	0dB.
Termination gain, 75R output into 75R load	-6dB.
Matching transformer gain 75R : 600R	+9dB.

Total gain of the active system with respect to the reference one is therefore +10dB., at 500kHz it is approx 16dB. and at 1.5MHz approx 6dB. These gains, though not large, are acheived using uncomplicated antenna, ground and feeder arrangements; signals are transferred with undiminished level at lower impedance.

Use of a step down transformer + coaxial feeders + step up transformer with our reference system will also reduce interference, but the potential for ingress remains worse than when active. The amplifier also introduces antenna/ground isolation, see part two, so the 10 to 20dB. possible reduction of antenna circuit noise can be added to the active system gain to create an overall 20 to 30dB. improvement in signal dynamic range at receiver input.

My 10m. whip antenna is only 8 to 20m. away from five neighbouring family bungalows and 220m. from industrial pylons, yet I enjoy excellent medium frequency reception using the remote amplifier and a Collins type R390A-URR receiver. The R390A's 0 to 100dB. carrier level meter does not indicate noise between weak channels, yet night-time continentals register up to 95dB. and all locals pin the needle; readings taken using the 1kHz IF bandwidth. Weak signal resolution is substantially improved at all medium wave frequencies, and mains bourne or television timebase interferences are rendered almost inaudible!

Both R390A and Marconi Mercury type receivers possess triple RF tuned front ends with impressive image and spurii protection, yet both generate small, though different, tunable errors when correctly matched to the active whip. These errors do not occur when using a good loop, for although loop output is much larger, it is sharply tuned and directional.



Matrix board layout for the active antenna isolating amplifier.

An extra tuning stage between any wideband source and the receiver input is effective both in reducing internal products and boosting weak wanted signals with respect to "powerhouse" transmissions on adjacent channels. However, for optimum low noise performance the feeder should be unbroken and correctly terminated because tuned circuit insertion can introduce losses, earth loop noise or screening problems. The preselector in my own system is combined with the phase amplitude mixer detailed later, but before that some general notes on loop antennas.

A loop of wire is an effective and self contained sensing element for electromagnetic radiation. It's sensitivity can be improved by increasing wound area, either by making the loop larger or by overwinding more turns.

When the area of a single turn loop is increased it's inductance rises and theoretical self resonant frequency falls. Now, although area increases at a faster rate than circumference, wave delays around the circumference create transduction phase changes before resonance drops to medium frequencies, and while a small single turn loop is insensitive much larger ones possess frequency dependent phase and sensitivity characteristics. Transition is gradual however, and a medium size loop, though quite inefficient and requiring input matching, has good wideband sensitivity and is useful as a bidirectional source for cardiod mixing. Size descriptions are based upon the circumferential length of sensible shapes, with small less than say 0.05λ and large greater than 0.5λ, where λ is the shortest wavelength to be received.

When more turns are wound over a given area then loop inductance increases much faster than the rate of circumferential increase and natural resonance at medium frequencies becomes possible. The resonance self amplifies induced signals and greatly improves antenna efficiency.

Again circumferential length is limited by wave motion along the wire, and windings must be shorter than 0.25λ for homologus interturn flux linking. Most solenoid and spiral wound loops have circumferential lengths of 0.1λ, though 0.2λ is possible by using appropriate wire and winding forms.

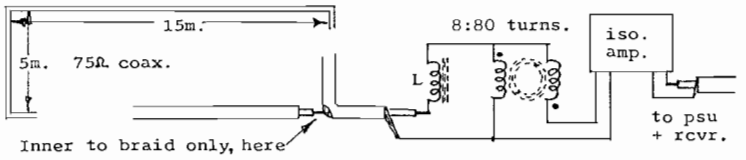
The tuned loop antenna's ability to peak a carrier and direct nulls towards unwanted transmitters has been popular with DXers. Ref*10. Refinements have led to improved, compact and amplified designs, but some inherent weaknesses are seldom overcome:-

(i) Whether screened or balanced these loops are rarely used outside. They receive domestic interference just as well as distant stations, especially during the daytime and early evenings. Also, the loop's position for an environmental noise null might not coincide with that necessary for specific DX reception.

(ii) At radio frequencies a tuned winding has an effective resistance many times that of the wire alone, and thermal agitation can generate noise potentials up to 25uV. between loop terminals. Ref*11. Often the signal strength meter on a sensitive receiver will be deflected by loop resonated noise without any carrier or interference being present. Larger diameter tuned loops possess lower Q and therefore are slightly quieter, but they are much more cumbersome and rarely tune all medium wave frequencies with the swing of a single variable capacitor.

(iii) Another problem occurs with cardiod reception, for when tuned loop output is mixed with that from a wideband whip/wire source the null occurs at only one frequency. A carrier can be notched out but disturbing levels of sideband splatter normally remain. Tuning the wire signal helps, but this causes further complication and effectiveness varies across the band. If an amplified loop is available it may be tuned 20 to 50kHz. away from the wanted signal. Here loop phase changes less with frequency, and mixing produces good carrier plus sideband nulls. Overall sensitivity is little reduced.

Comparisons between indoor loops and the active whip antenna clearly showed advantages of outdoor siting and prompted a series of experiments with medium size, single turn outdoor loops. General conclusions were;- the bigger the better, though exceeding a 0.5λ circumference could distort response; more simple to use coaxial cable capacitance to reduce and dampen the main resonance; for efficiency the step up transformer must be carefully wound; using an isolating amplifier and siting the loop away from buildings reduces mains bourne interferences by 20 to 30 dB., measured.



The present construction is shown above, inductance L, 4.7uH., reduces system damping at higher medium wave frequencies. The toroidal matching transformer is wound on a one inch core as earlier; primary- 8 turns spaced evenly around the ring, secondary- eight piles of ten between the primary turns. This loop is less capable of high frequency reception than the whip, therefore some isolating amplifier components (L1,L2,L3,N,R1,R2,TR1 and C1) may be ommited if desired, though the antenna pin must then be linked to TR1 end of capacitor C2.

Performance is outstanding. When mounted on poles down the garden, with it's bottom 15 metres concealed by grass, this loop looks just like a thick wire antenna. The only planned improvement is a washing line suspension for the top span of coax. Cable weathering is inevitable, but extra support should at least minimize internal damage. Transatlantic reception is favoured by a West-Nor-West alignment, and sensitivity, noise levels and dynamic range are commensurate with those of the active whip. This design encloses a wound area more than ten times that of resonant loops, and it's output is stepped up by a similar ratio. These factors equate closely with the figure of resonant Q for normal tuned loops, approx. 120, and though both types have similar outputs the large one does not require tuning.

Outdoor, single turn construction is also quieter. It responds less to domestic interferences, and, since thermally agitated winding noise is proportional to the inductance by Q product, it can hear much weaker signals. Indeed, tuned loop winding noise often causes a response that makes the background sound erroneously quiet. Signals and noise are still there, but antenna gain falls at frequencies both above and below resonance, and, to an AM receiver this appears as a carrier with quiet sidebands. Broadband antennas do not cause this effect.

The tuned loop is useful where domestic or environmental circumstances limit antenna choice to an indoor type. Selective designs assist receivers in finding weak carriers, and one that can be rotated about both vertical and horizontal axes may be more accurately adjusted for deep signal nulls.

Ref*1. The Romance and Reality of Radio, by Capt. Ellison Hawks. 1923 hardback, published by T. C. & E. C. Jack Ltd.

Ref*6. Curing TVI to MF/HF Reception, Practical Wireless, Jan 1984, by A. J. Cawtorne T.Eng(CEI).FSERT.G3TDJ.

Ref*7. Wireless Direction Finding, by R. Keen, any edition. An old hardback, published by Iliffe and Sons.

Ref*10. Medium Wave DXing, by Charles Molloy, Practical Wireless, April 1970, pages 962,3 and 5.

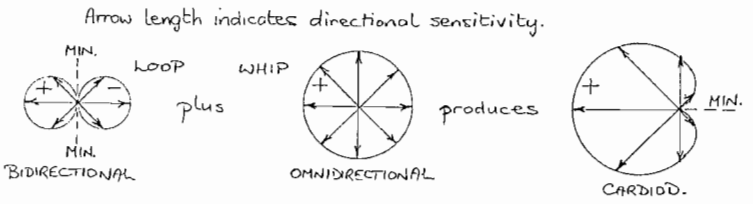
Ref*11. The Technique of Radio Design, by E.E.Zepler Ph.D.,M.Brit.I.R.E. published by Chapman and Hall Ltd., 1945.

Ref*12. The W-Q MW Loop, by G.S.Maynard, Practical Wireless, Nov 1985.

Ref*13. Differential Matching Amplifier for Loop Aerials, by Steve Whitt, Medium Wave News Reprint No.10.

All loop antennas are broadly sensitive in line with the winding wire, but sharply insensitive along their axes. Therefore, at any site directly between two transmitters attempts to null one signal will simultaneously upset reception of the other. Britain lies on a global path between America and Europe, so a single loop can not be expected to null continental signals and, at the same time, favour transatlantic reception.

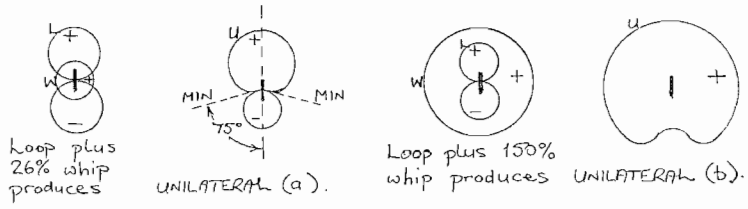
Cardiod, or heart shaped, sensitivity patterns are well known and may be generated by mixing equal amounts of phase matched loop and whip/wire signals. A broadly sensitive lobe predominates, and the now



single minimum is in line with the winding; forward sensitivity is increased and the null arc widened. In practice a cardiod response can almost double the transatlantic signal to noise ratio whilst providing general insensitivity towards the continent and one deep null for accurate alignment.

For a loop null of ___dB. with respect to main lobe		6.0	20	40	60	80	100 dB.
Loop alignment tolerance in degrees, vertical and horizontal	loop alone	30	6	0.6	difficult		
	cardiod mixed	90	36	11	3.6	1.1	

Though loop and cardiod reception patterns are well documented in DXing and radio direction finding publications, there is little mention of unilateral reception. Ref*7. Unilateral refers to a polar response that, though neither figure of eight nor cardiod, possesses enough asymmetry to indicate direction. It might have two minima less than 180 degrees apart and be termed a cottage loaf diagram, see (a), or show a single rather indistinct minimum, see (b). Navigators avoided using unilateral responses because accurate determination of transmitter bearing was not possible.



Response (a) is generated by mixing loop antenna signal with less whip/wire signal than is required for the cardiod pattern. The relationship between the nulling angle w.r.t. the loop winding wire, and the level of mixed omnidirectional signal as a percentage of loop output, is tabulated below.

Null angle, degrees	90	75	60	45	30	15	0
Whip signal, percent	0	26	50	71	87	97	100

Ninety degree nulls at 0% represent the normal loop response, i.e. no signal mixing, and zero degrees at 100% is of course full cardiod with the single null. Phase reversal of either antenna signal reverses the direction of a cardiod response and makes unilateral minima traverse oppositely.

Hence, an ability (i) to match and reverse the phase of loop and whip antenna signals, and (ii) to control their relative amplitudes, would be a basis for nulling ANY steady signal without rotating or tuning either antenna. The phase amplitude mixer described below is a practical development of this approach. It incorporates a sharply tuned mixing circuit which helps alleviate most intermodulation problems associated with the wide range of local to distant signal levels, and is capable of generating deep minima for use against Direct and Group Fading signals, or compromise settings for optimum nulling of Selective Fading and Night Effect signals. See circuit diagram.

This tuned mixer accepts dipole, loop, whip and wire inputs at low impedance and works with most screened feeders. Signal nulling may be acheived using a bidirectional/omnidirectional antenna pair, two similar but widely spaced antennas or impedance transformed angled Beverages. Phase variation is produced by a standard, 6:1 geared, three gang 500pF variable capacitor working as a passive (linear), three stage R-C network. At MW frequencies 15 to 105 degree adjustable lag is available on either input, and to prevent loss of cover the other undergoes a fixed 15 degree lag. The phase variation of one signal with respect to the other may therefore range between minus 90 and plus 90 degrees. If one signal is now reversed this range becomes plus 90 to plus 270 degrees and hence a fully variable 0 to 360 degree phase shift is realized. Two controls, the variable capacitor and a four way, ninety degree, quadrant selector switch, thus cover all possible antenna/feeder characteristics. Amplitude mixing levels are controlled by a dual gang cross fading potentiometer kindly made for this project by Electrovalue Ltd. Cross fading allows one control to cover a wide range of input signal amplitudes.

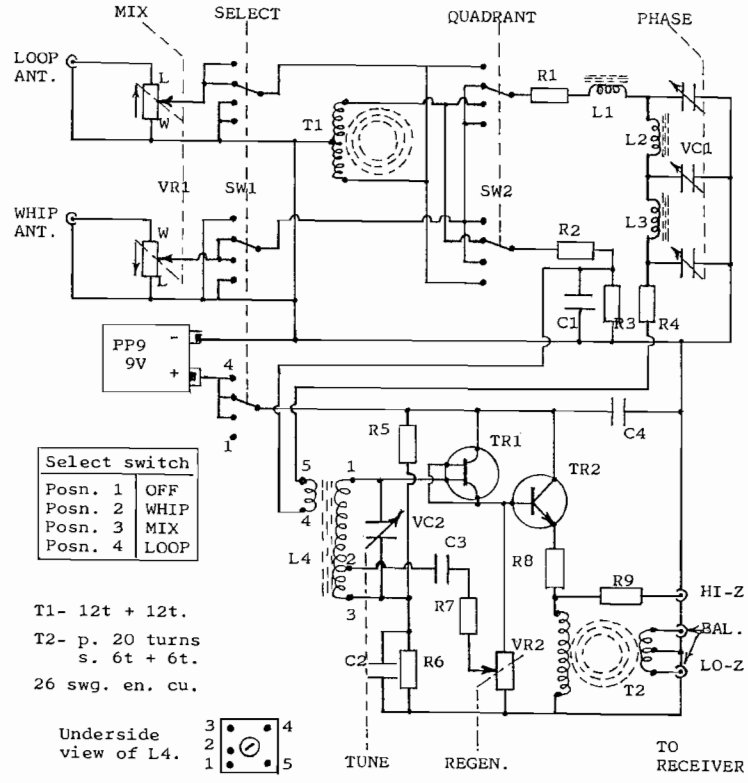
Sensitivity and linearity are maintained by tuned circuit mixing. Proportional mixing introduces losses and active mixing generates products, whilst isolated differential coupling to a resonant circuit produces frequency selective amplification. A second knob at this tuned circuit adjusts positive feedback, so selectivity is sharp and may be controlled to the point where an individual sideband can be chosen for exalted carrier reception.

The ON-OFF switch combines input control and enables direct comparisons between the mixed output and either individual input. Choice of Hi-Z, Lo-Z and Balanced outputs are available and a PP9 battery lasts for more than 450 hours. To prevent noise ingress and improve stability all components should be assembled inside a closed metal case. Internal layout and screening are not important as leakages are automatically compensated by mix and phase control adjustment as reception patterns are generated.

The tuned mixer at my QTH has become indispensible. It is built into a 10x7x3 inch aluminium box and provides five distinct modes of operation. These are:-

(1) Omnidirectional reception. With a whip/wire antenna and 'W' input selected any desired signal may be peaked using the 'tune' and 'regen' controls. Usefulness and signal to noise ratio are determined solely by antenna characteristics.

(2) Bidirectional reception. The normal figure of eight response produced by an amplified, pan and tilt, loop or dipole antenna system is selected with the mixer input switched to 'L'. Extra selectivity assists reception but the mixer does nothing to improve an antenna's basic transduction performance.



1 off 100R, lin. dual	VR1.	1 off 500p, 3 gang.	VC1.
1 off 10k , lin.	VR2.	1 off 250p, var.	VC2.
1 off 330R, ⅓W, 5%.	R1.	2 off 220p, B31110.	C1,3.
2 off 680R, ⅓W, 5%.	R2,9.	2 off 100n, B32560.	C2,4.
2 off 1k, ⅓W, 5%.	R3,7.		
2 off 560R, ⅓W, 5%.	R4,8.	1 off 40673.	TR1.
2 off 470k, ⅓W, 5%.	R5,6.	1 off BC337.	TR2.
1 off 47u, Siemens	L1.		
1 off 68u, B78108S	L2.	2 off K0618X830 core	T1,2.
1 off 100u, chokes.	L3.		
2 off 3p.4w. rot.sw.	SW1,2.	1 off IFT 13 coil, (with int. 250p removed)	L4.

Electrovalue Ltd. is the only known source for VR1.

THE TUNED MIXER CIRCUIT DIAGRAM AND SHOPPING LIST.

(The mixers Select switch allows instant choice and comparison between (1) and (2) above, or one of the generated responses below.)

(3) Zero cleaning. Where the less than perfect null of a vertically rotating or environmentally imbalanced loop antenna is deepened by mixing small amounts of oppositely phased cancellation signal from another antenna. First obtain the best null as in (2), then select 'M' for the mixing facility. Rotate the 'mix' control 30 degrees from the L end and enmesh the phase control by 45 degrees. Select the only 'quadrant' position that provides a null and then repeatedly adjust 'phase' and 'mix' controls to sharpen it. Note that electrical or mechanical cleaning of one figure of eight minimum simultaneously makes the other one less distinct.

(4) Cardiod reception, where the mixer offers switchable choice.
When nulling capabilities are more important:-
Tune up the desired signal as in (2) and then loop null the unwanted signal to establish it's direction. Now turn the loop through 90 degrees so that it's winding is in line with the signal, select 'M', centre the 'mix' control and enmesh the 'phase' capacitor by about 60 degrees. Select the best nulling 'quadrant' and then deepen response using 'phase' and 'mix' controls.
When forward lobe sensitivity is more important, either
(a) generate a full cardiod null on the wanted signal and then turn the 'quadrant' selector two positions to reverse the polar response i.e. transpose the minimum and forward lobe characteristics, or,
(b) null an unwanted signal from the opposite direction; forward lobe sensitivity is so broad that this signal need not be exactly in line with the wanted one.
Once set a cardiod pattern holds well with loop rotation, though fine phase and mix control adjustment should be tried when tuning other signals.

(5) Unilateral reception, for fixed loop/dipole applications or where unwanted signals cannot be nulled using loop or cardiod patterns. One deep and one shallow null may be generated at equal angles with but on opposite sides of any loop antenna winding.
Using a rotatable loop antenna axial nulling, (2), will establish two unwanted transmitter directions. Aim the loop between transmitters then adjust the mixer as in (4). This method might help alleviate noise from multi-source jamming operations; try repeated sequential adjustment of loop bearing/tilt and mixer phase/mix to obtain the most useful double nulling response. Four interacting variables introduce a trial and error aspect, so comparative listening checks are essential after each adjustment.
With a fixed loop antenna any single transmission from any direction can be nulled by adjustment of quadrant, phase and mix controls.

NOTES

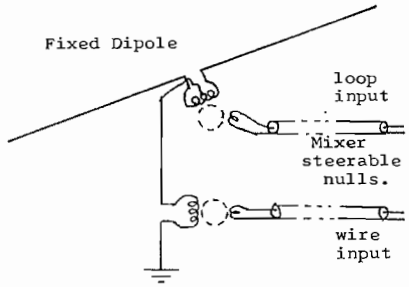
Phase amplitude mixers have been in use at my QTH for about seven years, the tuned mixer is a more recent and very successful development. Mine works well with the similar low impedance outputs from active 10m. whip and active 5 x 15m. loop antennas. Deep, stable and broadband directable minima are easily generated for nulling an interfering signal and sharp tuning boosts wanted modulation or portions of it.

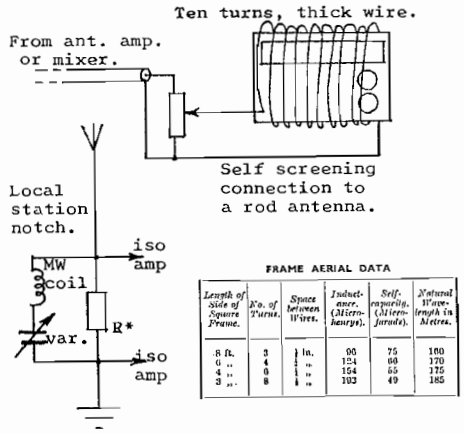
Don't worry that a 10m. whip will overload the isolating amplifier; if R* is sensibly chosen it's loading allows adequate sensitivity with good signal to noise ratio. Any particularly strong or troublesome local can be tamed by using a series tuned, high Q medium wave coil and variable capacitor across R*, see drawing; though use this method only as a last resort, transduction phase is disturbed and responses become distorted.

The high output WQ loop is useful for "off tune" mixer reception; it can be deliberately mistuned up to 100kHz off channel so that the generated nulls remove the carrier plus both sidebands. When a resonant loop is closely tuned to any mixer nulled signal there is a high rate of phase change with frequency, and even though a carrier can be deeply notched, overall reception suffers from residual sideband splatter. A resonant loop antenna should not be retuned once used as a source for mixer generated reception patterns, phase changes upset the directional response.

The active 5 x 15 is aperiodic and relatively phase constant, so mixer nulls are directionally sharp, yet frequency broad; signals are taken out over several channels for transmitters that are in the same direction. Non resonant loop + whip + mixer responses are stable and little affected by environmental changes, necessary pre-receiver selectivity is simultaneously provided for both antennas and subsequent mixer tuning does not disturb the generated polar patterns. By notching out Europeans this system removes the heterodynes and splatter that often spoil transatlantic reception, wider i.f. passbands become suitable and listening is much more comfortable. Previously I had to use 1,2,3 or 4kHz bandwidths for TA's, now I rarely find it necessary to go below 4kHz, 8 is often possible, 16 occasionally!

Though mixer settings may be noted in a reception log book it must be appreciated that they seldom remain constant for any length of time. Stable receiving apparatus cannot counter ever changing ionospherically returned signals, and two handed phase + mix control adjustment is necessary to silence the cyclically varying resultant on early night time Europeans.



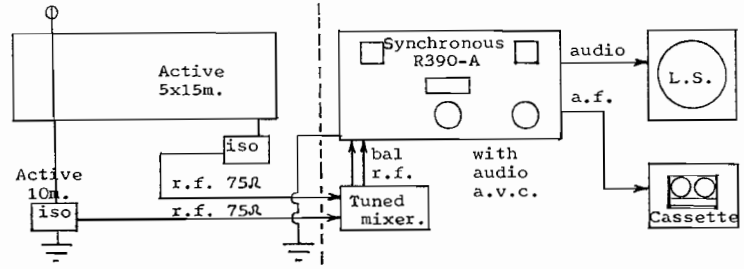


FRAME AERIAL DATA

Length of Side of Square Frame.	No. of Turns.	Space between Wires.	Inductance. (Microhenrys).	Self-capacity. (Microfarads).	Natural Wavelength in Metres.
6 ft.	3	½ in.	90	75	180
6 ,,	4	½ ,,	124	60	170
4 ,,	6	½ ,,	164	55	175
3 ,,	8	½ ,,	193	49	185

When the tuned mixer and a synchronous receiver are used together then a novel and exceptional facility exists. If by careful application of positive feedback the mixer is sharply tuned to one sideband of a weak signal the receiver sees a peak in modulation frequencies between say 500Hz and 2.5kHz with a reduction of the carrier and it's aetherial heterodynes. The synchronous receiver internally regenerates the original carrier and reproduces only those phase coherent signals that have already been boosted. Clearly a tuned mixer used with a synchronous receiver provides DXing advantage.

The preparation and writing period for this article has been one of continuing development. My MW system is now more analytical, less fatiguing and easily controlled -



Ground connections are simply 2 metre steel rods driven into wet clay. The whip is topped by a 50cm diameter wire ball which softens it's electrostatic point and prevents ionised air discharging.

That's it!

Good listening,

Graham

G S Maynard, 16 Woodford Avenue, Newtownabbey, N. Ireland, BT36 6TL.

Musings of the Members

Al Muick, Jr.
3500 Woodchase, #1310
Houston, TX 77042

Times are local per Muse.

Thoughts from NRC members ... the opinions expressed in this column are those of the individual writer and do not necessarily reflect those of the editors, publishers, or the National Radio Club, Inc.

Greetings and salutations! Welcome to another edition of Musings of the Members! Also, I have a new, permanent address effective immediately: 3500 Woodchase #1310, Houston, TX 77042. Let's get down to business!

BILL BERGADANO, 32 Joysan Terrace, E. Freehold, NJ 07728
I think the last time I mused the Mets were getting ready for Spring training in '86 - or was it '85? Hello out there! For those of you who remember me, (probably only 2% do and 98% don't want to, I'm sure), and for those of you who don't, how about an intro? OK, type double-spaced and write to the above address, yuk-yuk. Anyway, I'm 31, single, and work in the sales department of a huge computer company in Holmdel, NJ, and I moved here in July of '88 from Staten Island. My DX work has been mostly SW since the joy of deregulation back in (I think) '82. I've just gotten back to MW and the NRC. Newies? WGAM, 1520 KHz, Green Field, MA heard as WPOE in '79. I got into nostalgia looking over the old QSLs. Totals are 752 stations, veries to count up soon. From 1986 to January '89, I worked as an account rep for a huge business machine company. Until next time (at this rate, next is 1996!), 73s and good DX!

TODD BRANDENBURG, KAØKAN, 9720 NW 31st, Silver Lake, KS 66539, 913-582-4697
Hello everyone. The time has come for me to write up an intro, especially since Mr. Swearingen has put my name on the front page of DX NEWS for the second or third time. For the record, I'm 25, single, and work in the motor vehicle department for the State of Kansas. I'm also taking evening classes at Washburn University in Topeka, and should finish my computer science degree in a few years. Sometime in between all of this, Itry to squeeze in some DX time. I've been DXing AM roughly since 1976 when my grandparents gave me a pre-WWII Zenith tabletop radio (which still works) and FM since high school days. On AM I've caught roughly 225 stations in 34 states and 6 provinces. I have an extra class Ham ticket, though the only hamming I do is on 2 meter SSB, and that is infrequent. I really enjoyed meeting those of you who journeyed to Topeka for the convention. Hats off to Paul who put in a LOT of work on this convention and made it all look easy. I had a great time and am looking forward to Mr. Malicky's show in Pittsburgh next year. Til next time 73s de Todd.

RAY ARRUDA, 47 Burt Street, Acushnet, MA 02743
We are into the eleventh week of what is shaping up to be a very lengthy strike against New England Telephone, New York Telephone, and the parent company, NYNEX Corp. Main sticking point is who is going to pay the cost of medical insurance. Very little DX done since January and February of '89 with only two new veries: V/q from WZZZ-1300 test and x/1 from WFKJ-890. With all this time on my hands, I've been quite busiy with both indoor and outdoor projects around the house and expect to have some extra time for DXing as we swing into another season. IMPORTANT REMINDER.....Our Thanksgiving GTG will be held as usual in the Lower Deck on Saturday November 25 from Noon to ?? We hope you can attend. Please make a noteof this if you plan to be here as this announcement may not appear elsewhere in DXN. 73.

KARL V. JETER, 2115 Scarbrough Road, Stone Mountain GA 30088
Greetings from the Dogwood City, where the first sign of Fall, the color change of the Dogwoods (what else, hi) is already apparent. It has cooled off nicely this year, and it is amazing how the lower temperatures raise the desire to turn on the radio! The first DXpedition of the season is already history, and while it was fun, the results were only fair. On Sat., 9/23 Chuck Hutton and 1 headed up to Duluth GA, a NE suburb of Atlanta, to the office park where he works, and where there is a large, open, undeveloped area. So, we strung up close to 2000' in a SSE direction, paralleling the Chattahoochee (??!!--ajm) river and started listening. I was using my Sangean ATS-803A wgich worked well until I sometime during the night damaged the EXT ANT jack, and I had to switch over to a TRF. At about 1 am, as we were sitting in my car to avoid the cold wind, we were visited by one of Duluth's finest. The officer stepped up to the car, shined a light in the car, and asked us what we were doing. We told him we were radio amateurs and were listening to the emergency traffic coming from the Caribbean due to Hugo. He nodded, told us to be careful, and left! We thought for sure we would be asked to leave, and I was not relishing the thought of rolling up 2000' of wire in the dark and cold...whew! We got crystal clear receptions of Belize on 830 (before R. Taino blasted them out); KSSQ-1140 Conroe TX (w/SS programming, the announcer breaking into EE quite often while reading song dedications); a few Mexicans and FLs were noted, including WFXP-980. SS was on many channels where it is not usually heard. At some point during the night, our wire broke near the termination point, and when we were listening and sunrise (after a few hours of sleep, cramped in the car) a few loggings were made off the back end of the wire, including WYRV-770, Cedar Bluff, VA. We are still looking for a good beverage site nearby, particularly one where there is a good position to the W and NW. No veries to report at this time; a fow reports out to the DXpedition DX, and a bunch of follow-ups are out as well. My 4' loop antenna is back in operation, so hopefully there will be some good DX to send into DXDD soon! A quick note concerning the recent article concerning protecting equipment and using identifying marks. I am not sure about other states, but in GA at least, using your social security number would be fine, as this is also ones drivers' license number. It seems that the SS admin doesn't object to using the number for ID purposes as they used to...the card for my 5-year-old son makes no mention of this like my 20-plus-year-old card does. 73s until next time.

And now a veritable tome from:...
JOHN R. MALICKY- 995 Shadycrest Road, Pittsburgh PA 15216-3023
The final decision on how, when and where I would begin my 5th year of visiting stations, this year in the days before Topeka, came just 9 days before actual departure from home. Thus on Wednesday, August 31, for the first time, I flew, courtesy US Air (?!), to Kansas City, arriving at 12:30 PM CDT (one hour later due to delay), with much of my hearing gone for a few hours (as those who fly know why even though I chewed gum) and without my large suitcase (lost by the airline and not returned until midnight), I began my wanderings to 20 stations. Two hours later, my first stop, driving a Plymouth Acclaim from Avis, was at religious KCCV-1510 Independence MO, a suburb of Kansas City, whose move to 760 kHz in 90 days was noted. By the first day's end, I also visited three more stations, including KC's #1 rated country WDAF-610/KYYS-102.1, KC talker and Chiefs outlet KCMO-810/FM 94.9, and contemporary religious KCNW-1380. At KCNW, licensed to Fairway, KS, I picked up a verie from a March 1986 signoff. The next day, Thursday, August 31, a total 9 more facilities were encountered in and around the city. They included the rest of the Amers as listed in my guide in the '89 August issue of the Kansas City Radio Broadcasters' Association. Those 9 started with C&W sinulcaster KFKF-1340/94.1, then CNN on KBEA-1480/KXTR 96.5 (classical mx), AdCon KLSI-93.3, Myler KJLA-1190, Gospel-jazz-blues from KPRT-1590/Urban Contemporary KPRS 103.3, Heavy Metal "Z-Rock" (on satellite) KBZR-1030/KBEQ-104.3, news-talker KMBZ-980/KMBR-99.7, oldie WHB-710/KUDL-98.1, and Urban Contemporary KCXL-1140. A highlight, between stops at KPRT/KPRS & "Z-Rock/Q-104", and by accident, I attended the monthly meeting of the Society of Broadcast Engineers! The place and time of this interesting event was kindly passed on by KPRT's CE Bob Leedham. Lasting about 2 hours, President Lloyd Collins (KCMO's CE) introduced to the group a "real and in person" DXer (HI!). Also Mr. Collins made mention to the group of NRC's upcoming convention. Naturally, my autograph for everyone was free of charge-hi! So for giving up 2-3 more station stops, the event was worth it. Following a late evening drive, I began Friday, September 1st's visit at Ft. Scott, KS, home to "Country 16" KMDO-1600/KOMB-103.9, then onto Pittsburg and country and farm info source KKOW-860/96.9 and star station KSEK 1340/KYPG-101.1. A rather unwise decision followed during intervals of rain to head into Oklahoma and find Miami's (pronounced mi-am-ma) country simulcaster KGLC-910/KSSM-100.9. Heard at least 2-3 times each winter, this small station has its offices in town five miles west of the studio/xr site! Finally, the last visit of the day was 60 miles west straight to Coffeyville and nostalgic KGGF-690/KQQF-92.1. A second verie was taken, under some duress, for a December '85, 1 am EST s/off while KGGF was on their day pattern! By 7:30 pm, I concluded this year's visits and looked forward to about a 4-hour drive to Topeka, unfortunately, at my expense, I missed seeing 12 other stations due to improper timing. They included in Joplin, MO, two stations (KQYX veried in 1979 and KKLL-1100), 7 almost in line from Coffeyville, including KLWN-1320 in Lawrence, KS, who I passed late Friday, and three in Topeka. I did send cards out to several, noting my arrival, but did not receive any responses for directions except for two in Lawrence welcoming my hopeful, but absent, arrival. However, with very short notice, all Kansas City stations were gracious to give short tours. Also, my sincerest thanks to George Greene for pinpointing KC AM/FMs on a map. Hopefully a story with some profiles will follow as will one for last year (33 stops before and after Milwaukee). Now a break for 1990 as next year I get to stay home! 73s.

And that's all for this time around. Sorry as I don't have a phone yet, but Southwestern Bell is slower than molasses in January! 73s de Al