



# DX NEWS

The magazine of the  
National Radio Club

— SINCE 1933 —

Volume 58, No. 6 - November 12, 1990 (ISSN 0737-1659)

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### CPC Calendar ...

Date	Station	From/To (EST)
Nov. 11	WCOP-1350	4:30/5:00 AM
Nov. 11	WSYB-1380	5:30/6:00 AM
Nov. 12	WARU-1600	2:00/2:30 AM
Nov. 12	KRXY-1600	2:30/3:00 AM
Nov. 16	KORN-1490	5:00/5:30 AM
Nov. 25	KSTL-690	1:01/? AM
Dec. 1	KLER-1300	7:45/8:00 AM
Dec. 3	KOJM-610	2:10/2:30 AM
Dec. 10	KUMA-1290	3:05/3:30 AM
Dec. 16	KTIL-1590	3:00/3:30 AM
Dec. 17	KMBI-1330	3:00/3:30 AM

As you can see the tests are still rolling in. We are still in need of targets and contributions to continue sending letters for January through March... Send them to Jeff Tynan, 10359 Severance Dr. Parker CO 80134!

**WCOP-1350**, P.O. BOX 2127, Warner Robins, GA 31099-2127 will conduct a special DX TEST on Sunday Morning November 11, 1990 from 0430 to 0500. Test details to follow. Our thanks to the General Manager of WCOP for this test. Arranged by the Colorado CPC Machine for the National Radio Club.

**WSYB-1380**, P.O. BOX 249, Rutland VT 05701 will conduct a special DX TEST on November 11, 1990 from 0530 to 0600 EST. This test will consist of normal AdCon music program with interspersed voice and morse code ID's. Our thanks to Mr. Tom Elmore for this test. Arranged by the Colorado CPC Machine for the National Radio Club.

**WARU-1600**, P.O. BOX A, Peru, IN 46970 will conduct a DX TEST on November 12, 1990 from 0200 to 0230 EST. This test will consist of Voice ID's, Code ID's and March music. We would like to thank Chief Engineer Mr. James L. Swearingen for this test. Arranged by the Colorado CPC Machine for the National Radio Club.

**KRXY-1600**, 7075 W. Hampden Ave. Denver, CO 80227 will conduct a SPECIAL DX TEST on November 12, 1990 from 0230-0300 EST using 5000 non-directional. The test will contain both Morse Code and Voice ID's. KRXY will be silent for

the preceding 1/2 hour and will be conducting routine maintenance. Our thanks to Girard M. Westerberg Chief Engineer. Arranged by the Colorado CPC Machine for the National Radio Club.

**KORN-1490**, 319 North Main, Mitchell SD 57301 will conduct a Special DX Test on Friday Morning November 16th from 0500 to 0530 EST. Test details will follow. Our thanks to Mr. Joseph R. Shields for this test. Arranged by the Colorado CPC Machine for the National Radio Club.

**KSTL-690**, 814 N. Third St. St. Louis, MO 63102 will conduct a special DX Test on Sunday Morning November 25, 1990 beginning at 0101 ELT. This test will be combined with KSTL's Proof of Performance testing and will contain tones, possibly music and station ID's. Our thanks to Mr. Chris Davis Sales Manager for this fine opportunity. Arranged by the Colorado CPC Machine for the National Radio Club.

**KLER-1300**, P.O. BOX 32, Orofino, ID 83544 will conduct a special DX Test on Saturday morning December 1, 1990 beginning at 0645 to 0700 EST. The test will contain tones voice and Morse code ID's. Our thanks to Mr. Jeff Jones Station Manager. Arranged by Colorado CPC Machine for the National Radio Club.

**KATL-770**, BOX 770, Miles City, MT 59301 will conduct a special DX Test on Sunday Morning December 2, 1990 from 0700 to 0730 ELT. This  
*(Continued on page two)*

### DX Time Machine

#### From the Pages of DX News

**50 years ago ...** from the Nov. 9, 1940 *DXN*: CX6-650 Uruguay and CP3-1390 Bolivia were scheduled for testing for the NRC.

**25 years ago ...** from the Nov. 13, 1965 *DXN*: Eight domestic stations were scheduled for testing by the NRC; other clubs accounted for six more tests.

**10 years ago ...** from the Nov. 10, 1980 *DXN*: Gene Martin, Denver, heard far-eastern Europeans during late September and early October, including Bulgaria-747 and Turkey-657 ... Skip Arey's "Pseudo-Diversity" Reception article was sub-titled: "Let Your Brain Do the Work."

(continued from page one)

test will be their regularly scheduled programming (believed to be Adult Contemporary) but, KATL will switch to Day power and antenna and give test announcements during this time period. We'd like to thank General Manager Mr. Donald L. Richard for this test. Arranged by the Colorado CPC Machine for the National Radio Club.

**KOJM-610**, P.O. BOX 7000, Havre, MT 59501 will present a special DX test Monday Morning December 3, 1990 between 0200 and 0230 EST. This test will contain Morse Code Id's and other programming. Our thanks to Rob Yaw Chief Engineer for conducting this test. Arranged by the Colorado CPC Machine for the National Radio Club.

**KUMA-1290**, P.O. BOX 340, Pendleton OR 97801 will conduct a special DX Test on Sunday morning December 10, 1990 beginning at 0305 EST. This test will consist of a Special Public Service announcement for the National Radio Club. There will be Morse Code ID's contained within in the announcement. This will air two or more times between 0305 and 0330. KUMA will be broadcasting NBC TalkNet at this time. Our thanks to Mr. Greg A. Smith General Manager. Arranged by Colorado CPC Machine for the National Radio Club.

**KTIL-1590**, P.O. BOX 40, Tillamook, OR 97141 will conduct a special DX TEST on Sunday Morning December 16, 1990 from 0300 to 0330 EST. Test will consist of Music and ID's. Our thanks to Van Moe President for this test. Arranged by the Colorado CPC Machine.

**KMBI-1330**, S. 5408 Freya St., Spokane, WA 99223 will conduct a special DX TEST on Monday Morning December 17, 1990 from 0300 to 0330 EST. The test will contain music, voice and Morse code ID's. Our thanks to Gordon Canaday CE for this fine opportunity. (Many of you may remember Mr. Canaday running a test in 1987!) Arranged by the Colorado CPC Machine for the National Radio Club.

**From the editor ...** A great big thank-you to host Rick Dau for his Iowa City get-together, which brought 13 DX'ers out, mostly from Iowa

and Illinois.

**From the GM ...** Don't forget to get those FM station updates in to Mike by December 1. Include format, network, a telephone number, and also antenna height, address, vertical and horizontal powers, frequency, location, etc.

## NRC AM Radio Log

### 1991 Edition

**New - and only \$16.95**

The Log is 30% thicker and over 300 pages long, including two cross-reference sections. It contains more station information than ever before! Mail or call your order in now. Specify your mailing and address and number of Logs ordered. Order from NRC Publications (address on back) or use your credit card (VISA/MC) and call (608) 423-4159. (Canada, \$17.95; non-members and foreign, write.)



AUGUST 31-  
SEPTEMBER 1, 2, 3

# Pittsburgh '90

Genuine souvenirs  
of the '90 convention: a yellow 1x2.5  
foot pennant plus a plastic white print on black folder,  
with a pad of ruled 8.5 x 11 inch paper: US\$ 10; \$11 to Canada;  
others: write. Order from NRC Publications.  
Hurry - get yours before they're gone!

## 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

910	WVCN	SC	Dorchester	WVVO
990	KGTM	TX	Wichita Falls	KKCR
1060	KTLC	TX	Gilmer	KHYM
1340	KRMD	LA	Shreveport	KITY
1570	WHOG	FL	Fernandina Beach	WQAI

# WMNY

Studio: Kmtv. rwy 6  
Rt. 1, Box 189, Santee, S.C. 29142-9718

### APPLICATIONS FOR NEW STATIONS

None

### GRANT FOR NEW STATION

1440 KY Paris: 1000 D1 (replaces the facilities of WRPZ which had its license revoked following an extended period of silence)

### APPLICATIONS FROM EXISTING FACILITIES

1470 WQSN MI Kalamazoo: day power to 900 watts

### GRANTS TO EXISTING FACILITIES

None

### OTHERNESS

740 CHCM NF Marystown: station is here, ex-560 kHz  
1060 KFIT TX Lockhart: silent station is back ON THE AIR  
1260 WCSA MS Ripley: silent station has new owners, should return  
1490 WOLF NY Syracuse: silent station is back ON THE AIR relaying WNYR-FM Waterloo, NY

73 and Good DX, *Jerry & BK F* Jerry Starr & Buffalo K. Footman

## IN THE BEGINNING

BY JOHN D. BONKER

THIS IS THE COMPLETE LIST OF U. S. BROADCAST STATIONS ON THE INDICATED FREQUENCY AS PUBLISHED BY THE FEDERAL RADIO COMMISSION IN 1934. "S" MEANS SHARED; "SH" MEANS SPECIFIED HOURS; "T" INDICATES TRANSMITTER LOCATION; "D" MEANS DAYTIME OPERATION ONLY; "U" MEANS UNLIMITED TIME.

Frequency (kc)	Call letters	Main studio and transmitter location	Power	Time designation
770, clear----	WBBM	Chicago, Ill.----- T—Glenview.	25 kw----	U except S.H. night when synchronized with KFAB exp.
	KFAB	Lincoln, Nebr.-----	5 kw----	{U-D, S.H. night synchronized with WBBM, exp.

### NRC Coffee Mug

Nine-ounce size ... white glass ... with NRC emblem printed in black on both sides. It's oven-proof and microwavable. Makes a great gift for a fellow DX'er or for yourself. \$6 to U. S. addresses \$6.75 Canadian. Order from the Pub Center.





# Domestic DX Digest - East

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

**William Hale**

734 Burleson  
San Marcos, TX 78666

## MEDIUM WAVE rAMblings

- This column is being prepared two days early due a death in the family and associated travel out of town. Hopefully, next week we'll be back to the regular schedule.
- Attn: **Charles Reh!** Jerry Starr sez that WCTF 1090 Vernon, CT (your odd nighttime logging of 10/1, Issue 4) that these guys are a satellite-signal controlled operation out of San Francisco which are merely robots and for the most part have no local operators. The big thing is they DO NOT have nighttime authority, nor have they applied for same. Guess you caught them with their uplinks down!
- Rich Froho asks *Whattheheck is a Kowalski Loop? Are there any air-core loops available on the market?* Although I've seen Kowalski mentioned lotsa times in DDXD-E & -W, I don't have any personal knowledge of them. Or if air-core loops are available. Help, anyone!
- Issues 1, 2 and 3 saw 27 Graveyarders logged, and to be checked for possible record distances. Two did, in fact, make it to our GY Hall of Fame! Plus Olle Alm sent some more of his catches from the real north, Abisko, Sweden. All but two of those are new record-holders. See below for details...

## SPECIAL

**KDKA** (RADIO  
1020)

- 770 **KPBC TX GARLAND** - 10/13 1959 with REL mx in WABC fade → promo ending with *...join us...each morning at 6 O'Clock right here on the new ??? power, 770 KPBC*; then had power cut before legal ID; Log shows this as **KGGR** (CR-ON) [I don't get them well down here due to KSJL-760, but have heard *Praise Power 770* as a slogan and **KPBC** in a jingle; maybe Jerry \* or one of the D/FW members can fill us in on this; by the way, they give (214)445-0770 as a phone number, sted what's in the Log - Ed.]
- 800 **KXIC IA IOWA CITY** - has dropped **The Oldies Channel** in favor of simulcasting TV's **CNN Headline News** during the day and **running TalkNet at night**; what a complete waste of airspace (RD-IA2)
- 940 **KIOA IA DES MOINES** - 10/11 1233 with OLD by **Crosby, Stills & Nash** and **The Doors** sandwiched around this new ID: *The All New 93.3 FM and 940 AM, KIOA*; the first instance I can think of where an FM decides to simulcast an AM instead vice versa (RD-IA1)
- 1450 **WPSE PA ERIE** - recent QSL states stn not 24 hrs as in Log, but is **0600-0100 M-F, 0700-0100 Sat, and 0900-0100 Sun**; also is affiliate of American Radio network, and carries Monday Night FB (DT-ON)
- 1500 **KDFN MO DONIPHAN** - per 10/12 0700 sign-on, power is **D5 2500, CH 1000** (differs from Log) (REH-ON)

## UNIDS AND UNID HELP

- 610 **UNID ??** - 10/12 0635 off frequency SS station playing a variety of LA mx; looped a shade west of due south; heavy WTVN splash made for tough copy; still here 10/18 with sign-on at 0600 (0700 on Sunday 10/14) (REH-ON)
- 940 **WMIX IL MOUNT VERNON** - this is Mike Hawk's unID with **Cardinals BB**; they are a regular here at night under **KIOA**; *Hello, John Callarman* (RD-IA1)
- 1230 **KSSC MO JOPLIN** - this is most likely Mike Hawk's unID with **Cardinal BB**; they carry them and are one of my most frequent GY visitors (RD-IA1)
- 1500 **UNID ??** - 10/13 2040 under **WLQV** with **BBD/NOS** program called *Saturday Night Dance Party*; lost at 2100 with either sign-off or power cut (REH-ON)

## DX AND EQUIPMENT TESTS

- 940 **WFAW WI FT ATKINSON** - 10/14 0500-0600 very weak voice, unreadable, snatches of code and mx, some stn carrier on until 0544, talk assumed to be **WWJ** (very weak); CBM sign-on before 0600 also very weak; conditions poor (DT-ON)
- 1550 **WLUX LA BATON ROUGE** - 10/13 no sign of them; CBE very strong and they sign on at 0500 (DT-ON)

## MIDNIGHT TO 0800 HOURS ELT

- 710 **WOR NY NEW YORK** - 10/8 0509 crystal clear with the **Morning Business Journal**; wish I could get it this well at home (RD-Fern Creek, KY at David Reitz's place)
- 860 **WGUL FL DUNEDIN** - 10/14 0704 ending mx and wx - TLK pgm with disclaimer *...The views expressed by this program's ??? are not necessarily those of WGUL...;* poor, under a partially nulled **CJBC**; FL #170 (REH-ON)
- 1170 **KVOO OK TULSA** - 10/9 0104 good with **KVOO Color Radar Weather Forecast**; nearby **KSTT** must have been off, as they should have been flattening this channel (RD-IA3)
- 1320 **WBRT KY BARDSTOWN** - 10/5 0600 fair with sign-on (RD-Fern Creek, KY)
- 1390 **WCSE SC CHARLESTON** - 10/9 0140 fair with **Neil Sedaka** song off the bird - **KOOL GOLD 1390, WCSE ID**; SC #1 at this QTH (RD-IA2)
- 1490 **WUSS NJ ATLANTIC CITY** - 10/18 0104-0237 with **Larry King**, **MBS Nx**, **WUSS News** by female; poor, but dominating 1490; **QRM** from unID w/mx (DT-ON)
- 1540 **WPTR NY ALBANY** - 10/13 0004 good with message from **Council on Alcohol Abuse**, ID *This is AM 1540 WPTR*; unID under them, probably **KXEL**; local **CHIN** off (MS-ON)
- 1570 **CKLM PQ MONTREAL** - 10/18 0210-0218 w/C&W mx in FF, male & female FF annors; med-poor, minimal **QRM** from **CFOR** (DT-ON)
- 1580 **WKKD IL AURORA** - 10/14 0213 **Pure Gold 1580, WKKD ID**, heard thru **CBJ** during pause in **CBJ's** mx; talk about luck! [And skill, hi - Ed.]; new (RF-OH)
- WVKO OH COLUMBUS** - 10/13 0652-0703 with rap mx ID at 0700 **WVKO South Columbus**, soul mx, poor under unID (DT-ON)

## 0800 TO 1600 HOURS ELT

- 740 **KCBS CA SAN FRANCISCO** - 10/18 0823-0829 best-ever signal heard from this all-news station; *Traffic and weather together, every 10 minutes here on KCBS, News Radio 74*; 1st report sent (WCM-SD)
- 880 **KGHT AR SHERIDAN** - 10/22 0815-0825 format easy to mistake for **KRVN**: ag news, detailed wx, country mx; mailing address: 7515 Geyer Springs Rd., Little Rock, AR 72209 (WCM-SD)
- 1460 **WLKQ GA BUFORD** - 10/17 0830 popped out of the mess just long enuf for ID by male and then - **1460 News** by female (REH-ON)
- KGGO IA DES MOINES** - 10/4 1130 good in **KMRY** splatter with **95 KGGO ID** → song by **Shooting Star** (attn: Todd Brandenburg!) (RD-IA2)

## WBAT Radio

P. O. BOX 839  
MARION, IN. 46952

## 1600 TO 2400 HOURS ELT

- 560 **WIND IL CHICAGO** - 10/10 2256 fair with SS talk → SS ballad by male vocalist, call ID sung in EE @ 2300 (MS-ON)
- 800 **CKLW ON WINDSOR** - 10/8 1731 good with traffic ✓ by **Jay Anderson** from local AAA; a great afternoon catch at this distance (RD-on I-74 near Crawfordsville, IN)
- 850 **KOA CO DENVER** - 10/8 2330 very good with ID *on the Denver Broncos Network* (RD-on I-74 near Bloomington, IL)
- 920 **WMOK IL METROPOLIS** - 10/8 1939 fair with **Lionel Cartwright's My Heart Is Set on You** (RD-on I-74 near Bloomington, IL)
- WOKY WI MILWAUKEE** - 10/15 1905 fair with stock market report, wx, *51° at your official weather station, AM 920 WOKY*; with CLs sung (MS-ON)
- 950 **KLIK MO JEFFERSON CITY** - 10/9 1937 good with promo for **KLIK Party Line** - wx & jx ID (RD-IA2)
- WSPA SC SPARTANBURG** - 10/7 1725 XLNT with ID - **Elton John's Mama Can't Buy You Love** (RD-on U.S. 25 near the NC-SC border)
- 970 **WAYG KY LOUISVILLE** - 10/9 2111 fair with AC mx and **Wave 970 ID**; (RD-IA2)
- 980 **WTRY NY TROY** - 10/3 1854 good with ads for **Motel 6, Armory Garage - Used Car Dept.** and **Florist**; **WTRY Weather Watch** (MS-ON)
- 1040 **WHO IA DES MOINES** - 10/6 2330 good with replay of Iowa-Michigan State FB game (RD-in Great Smokey Mountains Nat'l Park near Maryville, TN)
- 1070 **WKOK PA SUNBURY** - 10/21 1740 good atop, in **CHOK** null with promo for **WKOK Roundtable** pgm, ID 1741 → soft rock mx; new (RF-OH)
- 1120 **WBNN GA GORDON** - 10/17 1858 with **BRN** disclaimer followed by **Bill Cosby** PSA on voting; s-off came after mx at 1906 mentioning **WBNN Gordon - Macon. We're business news for Macon on AM 1120**; no SSB; weak but not a peep out of **KMOX**; ex: **WYGO** (REH-ON)
- 1140 **CJTR PQ TROIS RIVIERES** - 10/2 1927 fair with FF talk, program anncts, ads, **CJTR jx @ 1930** (MS-ON)

- 6
- 1290 WHIO OH DAYTON - 10/8 1837 fair with wrap-up of **Reds** BB postgame show (RD-on I-74 near Danville, IL)
- WATO TN OAK RIDGE - 10/4 2304 fair with ID during **Reds** BB (RD-on I-74 near Danville, IL)
- 1360 WCHL NC CHAPEL HILL - 10/5 2245 good with 1360 **CHL** ID (RD-Knoxville, TN)
- 1370 WGCL IN BLOOMINGTON - 10/15 1835 fair with *Cool 1370 News* (local items), *Cool 1370 Weather*, ad for sponsor 1st **United Savings Bank**, sports talk phone-in show called *Sports Huddle* featuring **Indiana Hoosiers** FB and BKB, phone 333-2665; a check with Directory Assistance confirmed this as WGCL's number (MS-ON)
- 1410 WDOE NY DUNKIRK - 10/15 1851 fair with ID by female *Everything you want on a radio station is right here on 1410 WDOE - MOR mx; hrd again @ 1958 with oldie and ID @ 2000 mentioning WDOE Dunkirk - Fredonia* (MS-ON)
- WELM NY ELMIRA - 10/6 1800 fair with ID as 1410 **WELM Elmira, a Robert (?) Group Station** - nx (MS-ON) [The (?) you heard was probably *Pfuntner*, per BYB - Ed.]
- 1540 WMCB IN MARTINSVILLE - 10/14 1916 sign-off with invite to switch to WCBK-FM; poor, but on top (REH-ON)
- 1550 KQWB ND WEST FARGO - 10/4 2137 blowing away channel with OLD off the bird and 1550 **KQWB** ID (RD-on I-74 near Bloomington, IL)
- 1560 WAGL SC LANCASTER - 10/7 1715 XLNT with jx ID - C&W song; nice to hear this one again (RD-on U.S. 25 near the NC-SC border)
- 1580 WTTN WI WATERTOWN - 10/15 1833 fair with mention of *...downtown Watertown* and *...the next news update from WTTN News* (MS-ON)

**REPORTERS** **wdel**radio1150

- REH-ON CHARLES REH//Leamington, ON//R-390A + Sanserino Loop + TR-3000 open reel tape recorder
- RD-IA1 RICK DAU//Oakland, IA//R-1000 + RW Loop//1008 heard
- RD-IA2 RICKY DAU//Iowa City, IA//Ford caradio//GTG here November 3
- RD-IA3 DAU JONES//on I-80 near Walcott, IA//Ford caradio
- RD-XX WILLIE NELSON//on the road again//Ford caradio at all QTH's 'cept in Fern Creek, KY where I used an R-1000 + RW Loop (Superadio + 550' LW in Great Smokey Mountains National Park)
- DT-ON DON TRELFOED//Scarborough, ON//
- MS-ON MORRIS SORENSEN//Scarborough, ON//HQ-150 with SM-2 or RF-B65 barefoot
- WCM-SD WILLIAM MOSER//Lake Preston, SD//Zenith K731 with a loop
- RF-OH RICH FRCHO//Willoughby, OH//R7a, NRD-515, SM-1, LW

**GYDXA UPDATE**

1240:					
KWIK	ID	Pocatello	Olle Alm	Abisko, Sweden	4348
1340:					
CKVT	PQ	Temiscaming	MB DXPedition (SA)	Arnes, MB	841
1400:					
KFTM	CO	Ft Morgan	Olle Alm	Abisko, Sweden	4374
KSPT	ID	Sandpoint	Olle Alm	Abisko	4055
WQXO	MI	Munising	Olle Alm	Abisko	3642
1450:					
KGRE	CO	Greeley	Olle Alm	Abisko, Sweden	4379
KEZJ	ID	Twin Falls	Olle Alm	Abisko	4403
KCLD	MN	St Cloud	Don Trelford	Scarborough, ON	736
KLBY	OR	LaGrande	Olle Alm	Abisko	4271
1490:					
KRIB	IA	Mason City	John Wilkins	Wheat Ridge, CO	694
KNDC	ND	Hettinger	Olle Alm	Abisko, Sweden	3982
KWGR	WY	Green River	Olle Alm	Abisko	4390

**ABBREVIATIONS AND SPECIAL SYMBOLS USED IN DDXD-E**

|| parallel with or to - :to or into :00: on the hour AC:Adult contemporary AP:Associated Press BBD:big band BRN:Business Radio Net C&W:country & western CHR:contemporary hit radio CID:code ID Cont:Chr:contemporary Christian EZL:easy listening BE:English FF:French GOS:gospel IRN:Interstate Radio Net jx:jingle LSR:focal sunrise LSS:local sunset mx:music nx:news NPR:National Public Radio OC:open carrier POL:political PSRA:pre-sunrise authority PSSA:post-sunset authority QRM:interference QTH:location REL:religious ROK:rock 'n' roll RS:regular schedule S:stereo SID:singing ID SRS:sunrise skip SS:Spanish SSB:Star Spangled Banner SSS:sunset skip TC:time check TT:test tones UC:urban contemporary UPI:United Press International wx:weather

**Domestic DX Digest - West**

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

**Wayne Heinen**  
4131 S. Andes Way  
Aurora, CO 80013  
FIDO NET 104/108  
(303) 699-6335 (prepaid only)

I guess the USPS finally caught up with me and Paul and the disk swaps. Our first really trashed out disk was returned to me the Thursday before Paul's deadline. Oh well, hopefully we can go to a modern soon, Right Paul? (Yep! -pls)

**Midnight to Midday!**

- 940 WFAW WI Fort Atkinson  
10/14 0500-0600 Not hrd. Only Regular KFRE w/ CWM and semi regular KDEO w/ CWM. (Thanks for the kind words re: CPC-ed) (RO-AK)
- 1550 WLUX LA Baton Rouge  
10/13 0637-0656 Hrd some TT's, Lcl XEBG had been off but returned an hour before the test! (Tim, I got a verie for similar report so probably was they-ed) (TH-CA)
- 540 KJQI CA Costa Mesa  
10/21 1935 Fair-Good w/ CLA Mx (CMN feed) // FM. ID on hour was FM only. AMID a few minutes later over mx "This is KJQI, 5-40 AM, Costa Mesa". This marks the end of a good jazz format. (EX-KKJZ) (TH-CA)
- 650 KMTI UT Mantit  
C&W Mx "The all new 6-50 AM" A new PEST. (ex-1590) (TH-CA)
- 550 KMVI HI Wailuku  
10/23 0920 Good w/ AdCon o/ KCWR/KOY. Good low bands Conditions this AM. (TH-CA)
- 570 KQNG HI Lihue  
10/23 0917 AdCon Mx, possible slogan "This is KONG". Needed here. (TH-CA)
- 600 (KKLQ) CA San Diego  
10/8 0304 Noted off this AM, strange slop no new DX. (TH-CA)
- 650 WSM TN Nashville  
10/25 0507 Poor w/ CISL nulled. Lcl Wx & ID. First time hrd at this QTH. Not hrd since 1986. (JW-OR)
- 670 KPUA HI Hilo  
10/23 0818-0912 Good w/ KBOI nulled. OLD/ AdCon from 1965-1985 "67 KPUA" and "AM Stereo KPUA" slogans. Legal ID & CBS NX on the hour. Added QRM KWNK s/ on at 0859. (TH-CA)
- 690 KHEY TX El Paso  
10/23 0623-0915 Fair to good, Vy loud at El Paso LSR. Thru lcl XETRA w/ 2 other XE's. (TH-CA)
- 720 KUAI HI Elelee, Kauai  
10/15 0416-0503 Fair w/ HI Mx request show. Party in HI language. ID & informal s/ off 0500. Carrier cut 0503. KDWN off. (JW-OR)
- 750 KXL OR Portland  
10/22 0411-0508 Fair/Good o/u KAMA/KOAL TALKNET, legal ID, CBS NX, lcl Nx by man. Simulcast CBS TV "Nightwatch" Finally enough for a report. (TH-CA)
- 760 KGU HI Honolulu  
10/22 0704 Fair w/ KFMB running OC w/ CBS NX & TALKNET. KFMB ran some TT about 0600 and was back on without s/ on ann 0738. (TH-CA)
- 760 KSJL TX San Antonio  
10/22 0317 Fair w/ KFMB on OC. w/Z-Rock feed and ID's & Slogans. (TH-CA)
- 770 KRPM WA Seattle  
10/22 0339-0558 Poor w/ KFMB on OC, C&W //

- FM, Female DJ "FM 106" slogans. Legal ID's @ 0403 & 0558. WA # 26 (TH-CA)
- 820 CHAM ON Hamilton  
10/22 0636 Fair w/ WBAP nulled. C&W w/ male DJ and "8-20 Cham" slogans. (TH-CA)
- 910 (KECR) CA El Cajon  
10/13 0500 Noted off in car on way to Beverage Site. Back on when we got there. Noted off 10/14 0420 leaving XEAO. (TH-CA)
- 1050 KMTA MT Kinsey  
10/21 0828-0925 Good w/ fading C&W Mx slogan "your information station". ID on hour mentioned Kinsey-Miles City. CBS NX. XED returned form SP @ 0858. (TH-CA)
- 1130 (KSIO) CA San Diego  
10/8 0307 Off early on SP (usually 0400). I had taken some mid week SP's. CKWX/KWKH/KRDU noted in their absence. (TH-CA)
- 1140 WAKK MS McComb  
10/13 (See WAKK Vol 58 No3) Verie received saying it was them with Ms Net and C&W. Slogan is "Continuous Country". (WH-CO)
- 1160 KFHM TX San Antonio  
10/13 0700 Very good o/ KSL w/ legal ID in EE & SS Mx. Best reception yet. (TH-SD)
- 1220 KBET CA Santa Clarita "Canyon Country"  
10/13 0900 Noted well w/ CNN Nx and lcl ads. No sign of KDCC. (TH-CA)
- 1300 KBRL NE McCook  
10/27 0945 C&W Mx w/ lcl spots. First time with new call here. (WH-CO)
- 1440 KMED OR Medford  
10/22 0125 Fair on car rx w/ Unistar "Original Hits" NOS. "The station playing the songs you like to sing along with, KMED" Conditions Gd, this channel usually slop. (TH-CA)

**TIS Stations!**

- 1610 KOP737 AZ Grand Canyon Nat'l Park  
10/20 0323 Fair w/ new msg about recycling aluminum, glass and plastic containers. When this station is in conditions are good. (TH-CA)
- 1610 KOP773t WA Olympic Nat'l Park  
10/15 0536 Fair, ments of Hurricane Ridge, which is near Port Angeles. Femak describes facilities and male gives wx and road report. No call given. (JW-OR)

**UnID's & ID's!**

- 550 UnID  
10/8 0820 C&W u/ KCWR. (Both KUSA & KFMR run C&W at that hour-ed) (TH-CA)
- 570 UnID  
10/23 0932 Weak C&W u/ KLAC. Likely needed KGRY. (TH-CA)
- 600 UnID  
10/8 0318 MYL looping ENE w/ KKLQ off. 2nd time hrd. (Tim if this is a NOS or BBD type FOR-MAT, but not the real MYL net it might be KKLQ, Ft Collins who switched to this around 9/1-ed) (TH-CA)
- 730 UnID  
10/13 0732 LOUJ TT's. Possibly pest KSYN. (Tim-

73, Bill

8 I listened to this from about 0650 through 0715 w/ no ID then moved on-ed) (TH-CA) (TH-CA) 770 UnID 10/22 0345 BFL/ Instrumental Mx looping N in KKOB null. (TH-CA)

CONTRIBUTORS!

(JW-OR) Jack Woods Waldport, OR - ICF-2010, Marrens Loop (RO-AK) Rod O'Connor Kodiak, AK - GE Superadio

w/4' loop (TH-CA) Tim Hall Chula Vista, CA - ICF-2010, RadioWest Loop (TH-SDB) Tim Hall San Diego, CA - ICF-2010, 1000' LW, 1400' LW (WH-CO) Wayne Heinen Aurora, CO R-390A, RW-TRF-655, 4' NRC loop

73 [Handwritten signature]

# International DX Digest

**Jim Renfrew**  
61 Wilcox Street  
Rochester, NY 14607-3832

Foreign DX Catches. Times are UTC; for ELT, subtract 5 hours

With my loop fixed (it works, but the SM-1's ferrite bar is still broken, and the loop shows different characteristics when turned 180 degrees), I've been hoping for some auroral conditions to work with, but nothing has shown yet. But with all of the new regionals on former clear-channels it would be hard to notice good conditions anyway!

Welcome to Tim Hall and Russell Skotka! Now, on to DX:

### EUROPE/AFRICA

- 270 USSR Novosibirsk etc. 1134 10/13. M & W w/RR talk // 153,162,171,189,234, which is quite rare all with same program. [BV]
- 612 USSR Petrozavodsk etc. 2132 10/14. M talking // 575. [BV]
- 639 USSR Omsk 1824 10/14. M w/RR talk between bits of western rock mx, good sig. [BV]
- 891 UKRAINE SSR Uzhgorod 2330 10/10. Weak Mayak IS noted. [BV]
- 891 USSR Tyumen etc. 1850 10/14. Program 1 type mx-sounder at 1850?, fair signal.[BV]
- 918 UNID 1125 10/9. EE lessons, "come next week for results", excellent signal, could find no //. [BV]
- 1026 USSR unknown 1854 10/14. Organ mx //576 and 594, excellent signal, was in for a long time. [BV]
- 1485 SVALBARD NRK, Longyearben 2337 10/10. M talking in NN w/W // 630 and 1314. [BV]

### NORTH/SOUTH/CENTRAL AMERICA/CARIBBEAN

- 570 MEXICO UNID 0502 10/23. XE NA faded up u/KLAC, then gone. Still don't know who my R. Acir UNID is on this channel. [TH]
- 640 CUBA CMBB, Guanabacoa 0450 10/23. Putting a nice dent in KFI this evening w/Radio Progreso mx bulletin. [TH]
- 660 MEXICO UNID 0925 10/22(MM). Weak SS in KTNN null. XEPRM is not on at this hour. Per Neil Kazaross, XEFZ-740 Monterrey has moved here, so possibly them. [TH]
- 690 MEXICO UNID 1115-1130 10/23. "La Mexicana" slogan made me think I had KRMX, but ID sounded like XETM, XEPM, or XEEM. Nothing listed makes sense, possibly yet another new Mexican clear-channel station. [TH]
- 690 MEXICO XEST, Mazatlan 1258 10/23. Regional mx and ID. Sounded like they were just signing on. Slogan still "R. Sensación" ex-700, 1580. Fairly good signal right through local XETRA. [TH]

- 710 MEXICO UNID 1308 10/23. SS u/KMPC/XEDP. Still need XEPS here. [TH]
- 720 ALASKA KOTZ, Kotzebue 1355 10/14. Religious mx, 1400 ID, then AP nx. AKs also noted on 750,820, and 680. [BV]
- 730 MEXICO XEX, Mexico DF 1134 10/22(MM). S/on after regular MM 5P. Loud ITs a few minutes earlier might have been them. [TH]
- 760 CUBA CMBB, Guanabacoa 0720 10/22. Poor/fair at first through local KFMB QC, faded up later w/usual R. Reloj program. [TH]
- 760 UNIDs 1100 10/22. Two stations, one Mexican w/anthem and weak talk, the other quite loud (perhaps the Cuban, as Reloj pips still audible, or XEABC). Program commemorating the anniversary of the launch of the country's first communications satellite. No sign of XENY, and XEEB would not be on at this hour. [TH] (though for a special program, who knows? - Jim)
- 810 BAHAMAS ZNS3, Freeport 0806 10/21. Poor/fair u/KGO w/usual Black/Southern Gospel programs. Even with KGO back to full power, this station remains audible here. Wonder what their real power is? [TH]
- 840 MEXICO UNID 1158 10/23. XE anthem, immediately faded. Probably unneeded XEXXX. [TH]
- 850 MEXICO XEM, Chihuahua 1218 10/21. Fair/good through local XEMO slip in KOA null. IDs and slogans by M: "El ritmo 8-50," "R. Exitos," and "Su estación." Rare here. [TH]
- 890 ECUADOR HCRS6, Machala 0731 10/20. Fair/good in WLS null. M DJ, several IDs, TCs, and greetings to listeners in nearby Santa Rosa. Used to be semi-regular 4 - 5 years ago, now rare due to KDXU. [TH]
- 950 MEXICO XEKAM, Tijuana 10/18. Returned to the air after 7 months silence. Used a mix of EE and SS CHR for a few days, then picked up the Sun Talk satellite feed with UPI nx. Signal has already become distorted again, so it's a toss-up whether the mxr or the lousy format drives them back off the air first! Evening DRM from XEPB (which is now 10KW) does not help. [TH]

## RECORD

### Radio signals from space drop into Huntington

By Anita McCormick

No, it's not science fiction, even though it might sound that way. Radio signals, which have risen to heights of over 150 miles above us, are dropping into Huntington every night. They're from everywhere; Nashville, Philadelphia, New York, St. Louis and even in Cincinnati. And you can tune them in without spending a dime on specialized equipment.

Nearly every good-sized city in the country has at least one 50,000 watt powerhouse station. During the daytime, their signal can only be heard within a few hundred miles of the transmitter. But at night, things are different. Radio waves, which are absorbed by the atmosphere during the daytime, can reach the ionosphere - an electrically charged layer of the atmosphere - and are reflected back to earth where they can be enjoyed by listeners up to 1000 miles away.

All you need to hear them is an ordinary AM radio. Even cheap pocket models will usually do the job. Here in Huntington, we are in an ideal area to hear 50,000 watt AM stations from all over the east coast, as well as the midwestern region. Long-distance AM listening has so much to offer. There are so many programs you just don't get on local outlets - countless talk shows (many with toll-free phone numbers), religious programs, music for every taste, sports - even coast-to-coast trucker's programs, with up-to-the-minute traffic and weather reports from all over the country. It all rides across the airwaves on a nightly basis.

When the sun goes down tonight, tune slowly across the AM band and you'll see what you've been missing. Turn the

## Whenever you go, listen to the radio

You've read all the travel brochures. The Chamber of Commerce has done its level best to provide you with more information on the attractions, hotels and features of their magnificent city than you would need to know in a lifetime.

But in spite of it all, something still seems to be missing. Don't you wish you had a more direct source of information? If only you could just turn on your radio and hear the city you plan to visit you would get the feel of the place before you arrived.

By ANITA LOUISE MCCORMICK

Well, maybe you can. If your destination is a fairly large city - and you live within several hundred miles of it - there is a very good chance that you can tune in before you travel.

Long-distance radio listening, a hobby that had its ups and downs in popularity through the years, is making a comeback. Thousands of people across the country are twirling their dials every night to see what distant signal their AM radios can bring

in. It's fun, and if you do much traveling, combining the two activities can make them both more enjoyable.

It's easy to get started. If you own any kind of AM radio - even if it's only a small, inexpensive pocket model, you already have all the equipment that you need.

During the day, AM signals can seldom be heard over 200 miles away from the city of their transmission. But as soon as the sun goes down in the evening, signals bounce off the ionosphere (an electrically charged layer of gas about 150 miles up above) and are reflected back to Earth. This makes it possible to hear AM stations up to a thousand miles away almost as clear as if they were broadcast from a local station.

Nearly every major city in the U.S. and Canada has at least one 50,000 watt super station, and if a local station in your area isn't on or near the same spot on the dial, you can probably hear your target. Many of these stations broadcast their own call-in programs, give extended newscasts and produce a wide variety of features and reports on local activities. These stations tell you everything you want to know about the local weather, road conditions, airport closings and local events. If you have any questions about the area, just call in and ask. The program host will be happy to assist you.

Editor's note: Box (upper right) lists call letters and frequency of selected stations.

### Tune in

The NRC Radio Log, published by the National Radio Club, lists the frequency (spot on the dial), call letters, transmitter power and location of every AM station in the U.S. and Canada. For more information write: NRC, P.O. Box 164, Mansville, N.Y. 13661. Here are some 50,000 watt targets to try for:

KFI	Los Angeles, Calif.	640
WNBC	New York, N.Y.	660
WMAQ	Chicago, Ill.	670
WLW	Cincinnati, Ohio	700
KDWN	Las Vegas, Nev.	720
WSB	Atlanta, Ga.	750
WJR	Detroit, Mich.	760
WABC	New York, N.Y.	770
WCCO	Minneapolis, Min.	830
WHAS	Louisville, Ky.	840
KDKA	Pittsburgh, Pa.	1020
WBZ	Boston, Mass.	1030
WHO	Des Moines, Iowa	1040
WFWE	Cleveland, Ohio	1110
KMOX	St. Louis, Mo.	1120
KSL	Salt Lake City, Utah	1160
WVA	Wheeling, W.Va.	1170
WOAI	San Antonio, Texas	1200
WCAU	Philadelphia, Pa.	1210
WKCY	Cincinnati, Ohio	1530

### Capper's Weekly -via Arthur Robb

(Note: Miss McCormick is a free-lance writer from Huntington, WV, specializing in radio.)

volume up a few notches and explore the 'empty' spaces between local broadcasters.

Stations you didn't even know existed will assert their voices through your radio speaker, sometimes almost as clearly as the home town stations you've been listening to. Once you get the hang of it (and it won't take long), you'll have dozens of new entertainment options.

When you're trying to tune in out-of-town stations, keep your radio as far as possible away from fluorescent lights and motor driven appliances. They generate electrical noises that can easily block out everything you're trying to hear. Also, some buildings with heavy

steel construction can keep signals you want to hear from reaching your radio.

If you'd like to get a listing of every AM station in the U.S.A. and Canada, contact the National Radio Club, P.O. Box 164, Mansville, NY 13661. The NRC Radio Log gives the frequency (spot on the dial), call letters, transmitter power, broadcast format and location of every station you could possibly hear. They will be glad to mail out information on the log, as well as their club.



1020 VENEZUELA UNID 2230-2315 10/23. Sports broadcast (futbol?), beginning with Ven. NA at 2335, lots of cities and stations named, so likely a network b'cast. Could have been Margarita, but DF was closer to Maracibo. [JR-NY]

1060 HAITI 4VVE, La Voix du L'Esperance 2305-0050 10/21-22. Fair to good signal of football match w/2 Creole men and hoarse play-by-play and color commentary. Annrs were extremely excited by the game and were apoplectic when goals were scored. Apparently, the Haitian national team was playing a Cuban team as there were many mentions of each team as simply "Haiti" and "Cuba," with many references to Hispanic and French surnames. Match was over @ 0003, then soft spoken W annr in Creole w/mention of "La Voix du L'Esperance" in string then EZL mx for a couple of minutes into religious programming til overcome by GRM @ 0050. No //s of the match were noted on any of the Cuban outlets. [RS] (see below for more about Haitian stations)

#### ASIA/OCEANIA/PACIFIC

639 CHINA Beijing CPBS-1 2005 10/14. W w/"chun yang yin quan potemtje," or similar, topping dmsk, incredible considering the time. [BV]

747 JAPAN JIIV, Sapporo 0930 10/22(MM). Poor/fair w/EE lesson // 774,828. Good to finally hear them again. [TH]

774 JAPAN JOUB, Akita 0935 10/22(MM). Good signal w/EE lesson // 747,828. Excellent IP conditions this morning. [TH]

828 JAPAN JOBB, Osaka 0921 10/22. Fair/good w/EE lesson #97." Used to be a nightly catch in fall and spring, but this and other JJ stations had not been noted for at least two years here. [TH]

891 UNID 0915 10/22. Poor/fair, probably Korea hetting against WLS this morning. [TH]

972 SOUTH KOREA HLCA, Kimsje 1900 10/14. W, then 1900 KBS type pips, M annr, excellent signal, time correct // 1134 good. [BV]

972 UNID 1128 10/22. Strong carrier, little audio. Possibly the Korean, which used to be a frequent catch here. [TH]

1035 UNID 1049 10/22. Weak carriers, very little audio. [TH]

1107 UNID 1030 10/22. Weak carrier, faded up at times w/pgm of military mx. [TH]

1116 UNID 1018 10/22. Weak carrier, little or no audio. Nothing ever logged on this frequency. [TH]

1125 UNID 1011 10/22. Weak, but steady carrier, very little audio. Nothing heard on this frequency before. [TH]

1134 UNIDs 1015-1030. Two stations noted w/fair signals. One seemed JJ, the other KK or possibly CC. Most likely Japan and Kore, both of which I still need. [TH]



1197 UNID 1030 10/22. Carrier, little or no audio. [TH]

1215 CHINA various 1315 10/14. M w/potemtje ID, then W; likely the CPBS-2 net. [BV]

1449 IRAN Bander-Turkamen (tent) 2228 10/9/10. M w/AA talk o/instr mx, 2230 pips. Same kind of program heard on 1431 khz 10/6, and other dates, but never on both frequencies at the same time. Maybe one frequency one day, the other frequency the next to stop jamming? Understood Iran/Iraq war was over. [BV]

#### STATION NEWS

HAITI From Russell Scotka: "They [4VVE] appear to be operating at or close to the advertised power of 10KW. Oftentimes nighttime powers there are lowered due to lack of electricity. During the most oppressive period of military rule there were no stations operating in the PM except for R. Haiti Intn'l on 1330, and they were sporadic at best. (It seems to me that 4VEH uses its own generator, so I wonder if what Russell has stated holds true for them as well? - Jim)

#### CONTRIBUTORS

[BV] Brian Vernon, Nanisivik NWT; Drake R7A, two 1500' longwires

[JR] Jim Renfrew, Rochester, NY; HQ-150, SM-1

[RS] Russell Scotka, Margate, FL; Drake R7, 2' balun loop coupled w/60' longwire w/LIL-1 phasing unit

[TH] Timothy Hall, Chula Vista, CA; Sony SCF-2010, Radio West loop

It's hard to know what to call Brian Vernon's loggings, TA, TP, or Trans-polar. In any event, there are some great loggings this week, from 14 countries. Let's add your loggings to IDXD next week.

Jim

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## Sunset DXing From The West Coast

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During any given winter, there's a scene similar to this going down in some MW DX'er's home, somewhere in North America:

A mid-December Saturday, early afternoon. Thanksgiving is but an Alka-Seltzer memory and Christmas looms unpropitiously on the horizon. Outside, the weather is so cold/rainy/snowy (circle one) that donning a full regalia of Arctic Survival Gear is required to simply make the short trip to the mailbox. Inside, the only offerings consist of yet another boring afternoon of meaningless college Bowl Games and/or a wife who never lets you forget that last week you *promised* you'd putty knife the ketchup off the bathroom ceiling.

You sit in your easy-chair, one eye half-open, glancing occasionally at the *Pepto-Bismol-Preparation H* Rerun Bowl (each team featuring at least six players who are shoe-ins for the Heisman Trophy), the other eye glazed out the window at the continuously-falling precipitation. Mechanically, your left hand lurches for the seventh mug of Hot Buttered Rum of the day, while your right hand can't decide whether to pat the little lady on the rump, or to grab the remote and watch something a little more exciting - like C-Span, for example.

"Too bad that it isn't after sundown," you mutter, as your fingers settle for remote. "At least then I'd be able to sit down at the rig and do a little MW DX'ing. But it's only 2:00 in the afternoon, and no DX can be heard this early in the day, especially from here on the west coast..."

At this point, the right hand should put that TV remote back on the coffee table and do a re-think. Perhaps connecting itself to the RF gain knob of the nearest MW DX machine would be surprisingly more satisfying than either the rump or the remote. Who says there isn't any good DX'ing to be had on the west coast before sundown? As a 20-year veteran of MW DX'ing, I can honestly state that some of the most satisfying catches of my DXing career occurred during the pre-sunset hours here in the Willamette Valley of Western Oregon.

There are many things that one can do to enhance one's chances of hearing exciting DX at a time that is supposedly bereft of DX, the most notable of which are: (1) Becoming familiar with pre-sunset propagation characteristics and (2) learning how to *Target* possible DX catches. For, despite the commonly-held (and often club-perpetuated) beliefs, sunset DXing from the west coast can be very productive in providing reception of MW stations to the east of your location before the sunset power-down or sign-off—as much as one and one-quarter hours before local sunset. One only needs to implement a well-informed, systematic approach.

#### Now Hear This...

At my location, approximately 70 miles south of the 45th Parallel (half-way between the Equator and the North Pole) and 50 miles inland from the Pacific Ocean, I've been fortunate enough to hear some exciting DX catches that came about only be-

cause I chose to attempt to refute the idea that sunrise was not necessarily "the best time" that reception conditions to the east were enchanted. But perhaps "fortunate" is not the correct word to use here; perhaps a better word would be "organized", or "prepared." The idea of long-range DX'ing "against the grain" requires some effort if it is to be profitable. Due to my preparedness (coupled with a basic understanding of sunset propagation characteristics), KFLT, a 50,000-watt station in Tucson, Arizona on 830 (daytime operation only) 750 miles to the southeast, was positively ID'ed on a November afternoon in 1989 at 4:06 pm -15 minutes ahead of my local sunset; KTOX, a 500-watt station in Boise, Idaho on 730 (daytime operation only) 250 miles to the east, was positively ID'ed one October afternoon in 1985 at 4:57 pm -a full half-hour ahead of my local sunset; KFAM, a 50,000-watt station in Salt Lake City, Utah (1000 watts nighttime operation), 450 miles to the east, was positively ID'ed on a November afternoon in 1983 at 4:30 pm - a full half-hour ahead of my local sunset; KGVW, a 10,000-watt station in Belgrade, Montana on 640 (1000 watts nighttime operation) 425 miles to the east, was positively ID'ed on an October afternoon in 1984 at 4:28 pm -45 minutes ahead of my local sunset; and KATQ, (which it was at the time) a 5000-watt station in Plentywood, Montana (daytime operation only) 615 miles to the east, was positively ID'ed and taped on an October afternoon in 1985 at 4:09 pm - a full one hour, 15 minutes ahead of my local sunset.

Not one of the stations listed above was simply stumbled upon by chance. Each was a methodically thought-out Going Against The Grain Target. Being that these targets were either daytime-only stations, or were limited in their nighttime coverage by their severely reduced wattages and/or unfavorable antenna patterns, most (maybe all) would have remained "unheard's" had they not been nailed at sunset when the conditions were favorable in their directions.

What, though, is "Going Against The Grain"? How does it work and why? Before these and the questions of How to Target a Station are answered, an understanding of station sign-off/power-down times and sunset propagation characteristics is essential.

#### You Heard It Somewhere Else First...

In the ICA New Member Packet, there is an article entitled "Times To Listen For BCB DX". In part, the author of this article states, "Many daytime-only stations can be logged in the hour or two preceding sun-set... The sunset skip period is particularly useful to DX'ers in the eastern part of North America, because stations in time zones farther west become audible after local daytimers have signed off. Western DX'ers have an advantage in being able to pick up many eastern sign-ons in the mornings." This would seem to immediately put off a new member (or other inexperienced DX'er) to even try for sunset DX to the east from the west coast, as it did me when I was a new

(continued on next page)

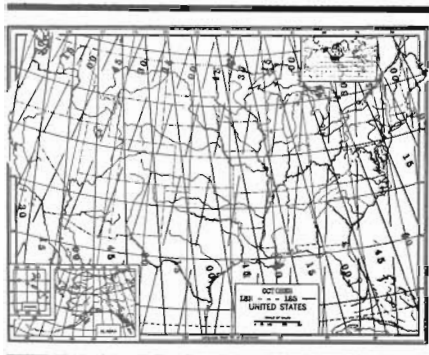


member to the club and still a little naïve as to what was possible to be heard.

As my professional life and home life progressed over the years, parallel to my DX'ing career, I found that sunset on the weekends was virtually the only time I could squeeze in some DX'ing. And I found that some amazing things could be heard during the hour or so preceding sunset. My envy of the easterner's "advantage" at sunset DX gave me the motivation to actively investigate the phenomenon of sunset DX.

In a capsulated form, here are the basics of sunset DX:

The Federal Communications Commission has assigned "official" sunset times for daytime-only stations and stations which must reduce their power at night. This "official" sign-off time is whatever time sunset actually occurs on the 15th day of each month, rounded off to the nearest 15 minutes. Because sunset times change by as much as one to two minutes a day, this "average" is responsible for the fact that *during the last half of the months in the fall and the first half of the months in the spring* stations that are assigned sign-off or power-down times at sunset routinely operate on daytime power for as much as 15 minutes past when sunset "actually" occurs. In other words, daytime-only stations are on the air for 15 minutes "at night", and stations which must reduce to nighttime powers after dark are still operating with full daytime power for as much as 15 "nighttime" minutes - the 15 minutes that occur directly before/after "actual" sundown. Thus, for any given month, sun-down times across the country can be mapped out, showing the 15-minute increments within which stations must sign-off (day-time operation only stations) or power-down (reduced power at night stations). A sample Sunset Map for the month of October follows:



Sunset maps for every month of the year are available from the National Radio Club. They are an absolute *must* for anyone attempting sunset and/or sunrise DX; there is absolutely no way that anyone serious about a systematic approach to sunset DXing can make do without this basic reference.

#### **We've Been Down This Road Once Or Twice Before...**

For the sake of brevity on an already much-covered subject, only a very basic and much-simplified

version of medium-wave propagation will be presented here. Those requiring a more detailed version of these proceedings shall be referred to the list of references at the end of this article. The articles listed will be the best bet for answering unanswered questions inadvertently raised here. Other good bets include any decent-sized library that includes references on radio wave propagation.

During the daytime, the D and E layers in the Ionosphere are responsible for returning/absorbing skywave signals emitted from earth. Because most of the energy from any emitted Medium Wave signal is absorbed by these layers during the daytime and thus not returned to earth for reception at great distances, most daytime DX loggings are of the Groundwave variety, typically resulting in receptions of stations located a couple hundred miles away or less. At night however, these layers either disappear (and thus their signal-absorbing qualities disappear with them), or they metamorphose into signal reflecting/ refracting layers, thereby allowing medium wave signals to travel and be received over much greater distances.

Ground waves, however, are not reflected/ refracted off of the ionosphere but rather travel along the ground, following the curvature of the earth. Because the earth is less than a perfect conductor, the amount of signal conducted is directly proportionate to the conductivity of the soil over which it travels -- and conductivity values vary from area to area. Certain soils conduct radio waves more efficiently than others. Water is the most-nearly perfect radio wave conductor, which accounts for the fact that coastal reception sites experience more enhanced Trans-Pacific or Trans-Atlantic reception qualities than do more inland locations. Rocky soils are the least conductive.

Water-saturated (heavy rain) or water-covered (heavy snow) areas typically experience enhanced groundwave reception due to the fact that the water content of the soil helps to increase the level of conductivity of the surrounding ground. If the path between the receiving site and the transmitting site has seen a particularly precipitation-laden winter, reception quality characteristics at the receiving end will be increased. Living here in the Willamette Valley of "perpetually soaked" Oregon, I can personally vouch for the conductivity-increasing qualities of rain and snow.

#### **Going Against The Grain--And Why It Works**

It is easy to see why sunset can easily be touted as a prime DX time for east coast DXers: When the sun sets in an easterner's 15 minute "slice" of the country, their local stations will either sign-off or switch to reduced nighttime powers and antenna patterns, thus freeing up some frequencies for distant station receptions. So, for 15 minutes at least, stations 15 minutes away from a DXer's receiving site will still be operating in daytime mode and will become potential targets because the DXer's location is in nighttime, and 15 minutes away (where the operating stations are located), it is *nearly* nighttime. After those stations sign-off or switch to nighttime facilities, another 15-minute "slice" will open up, and so on, across the continent.

In contrast, for west coasters, the sunset scenario goes like this: During the period immediately preceding local sunset, the Ionosphere to the east be-

*(continued on next page)*

months of the year.

#### **Tools Required For The Job**

It will be assumed that the reader will already have in their possession (or will be able to obtain) the essentials: A receiver capable of tuning BCB frequencies, an antenna (either a built-in ferrite bar, or other), and a willingness to spend a couple of hours preparing a Target List. Beyond these basics, the following should be at hand for proper preparation of said Target List:

1--A current listing of all stations known to be operating in North America. The most notable of these is the National Radio Club's 1991 Log. Keeping this log up-to-date (via the club magazine, *DX News*) will forestall many hours of frustration of attempting to hear a station that is not currently on the air. There are other listings available, but none worthy of mention (or purchase);

2--Sunrise/Sunset Maps, available from the NRC. A sample map was depicted earlier in this article.

3--Rand/McNally Road Atlas (or similar).

4--A 12-inch ruler. This, along with 3 (above) will be used to determine sunset times for stations located "on the line" between the 15 minute sunset increments depicted on the Sunset Maps. (The process will be outlined later in this article.)

Because my personal experience has shown the period between the end of November to late January (approximately Thanksgiving to Super Bowl time) to be the most productive for sunset DX, the beginning sunset DX'er might also find it handy to visit a library where newspapers from their Target's towns will be available. This will enable them to find *exact* sunset times for their Target towns for the 15th of each month in question. These times are usually listed on a "Today's Vital Statistics"-type of page, along with current local and national weather and such. Also, the sunset time on the 15th of each month for the DX'er's location will be available by referencing the local newspaper. Because these times do not change from year to year, once they are isolated and noted, one need not look them up again.

In addition, the more well-equipped DX'er might wish to have the following available:

1--A receiver capable of receiving WWV or WWVH, where propagation conditions/ forecasts are available at 18 minutes past each hour. With a spate of articles detailing these broadcasts being available, there is no need in this article to go into the usefulness of these broadcasts to the MW DX'er.

2--"DX Edge", a product available from Xantek, Inc. (P. O. Box 834, Madison Square Station, New York, NY 10159) which depicts sunrise/sunset times for the entire world for every month of the year (on the 15th of the month) as well as daytime/ nighttime areas. Unfortunately for the MW DX'er, DX Edge is not as detailed as the Sunrise/Sunset Maps in its depiction of 15-minute sunset increments. On the plus side is the fact that it covers the entire world (western Canada is prime sunset DX territory for the west coast sunset DX'er) instead of only the United States. Also available, from the NRC, are Gordon P. Nelson's world sunrise-sunset maps and computer programs, in sev-

*(Continued on next page)*

gins to become nighttime-like in nature, while the ionosphere directly beyond that is already fully-delved in darkness and displays full nighttime-like qualities. Skywaves traveling from east to west experience full nighttime ionospheric qualities at their point of origin, followed by increasingly nighttime-like qualities as they travel westward, ending with enhanced ground-wave qualities (due to heavy rain-soaked and snow-covered ground near the receiving site during winter months). In other words, routine DX reception to the east at sundown is not only a possibility, but a reality in a lot of areas of the west coast, contrary to popular belief.

#### **Identifying Potential Target Stations**

Now that we have discussed the rationale for attempting sunset DX from the west coast, let us now discuss the characteristics that make up a potential sunset DX Target.

**Definition:** A potential sunset DX Target for the west coast DX'er is any needed/ unheard station that is located in an area where the sundown time for the given month is no more than one and one-half hours ahead of the DX'er's local sunset.

**Selection:** To be considered for designation as a Target, the station in question:

1--Should not be on the same frequency as a local station, unless the DX'er is in possession of a highly directional receiving antenna which would allow for the complete or near-complete nulling of said local;

2--Should not be on a frequency immediately adjacent to a local station, unless, as above, the station's offending splash can be adequately nulled;

3--Should lie in a direction approximating the direction in which the DX'er's receiving antenna is pointed, should a directional antenna be in use at the time. If an omni-directional or an easily rotatable loop antenna is in use, the direction of the target station is not as critical;

4--Should be verifiable as being currently on the air. (Station lists are available--See "Tools Required For The Job" immediately following this section);

5--Should be a station that:

(a) Operates daytimes only (signs-off at sunset), or

(b) Powers-down their transmitter significantly at their local sunset, and/ or

(c) Changes antenna patterns at night and broadcasts the bulk of their signal in a direction not favorable to reception at the DX'er's location, or

(d) Is otherwise not receivable at the DX'er's location after sunset, whatever the reason;

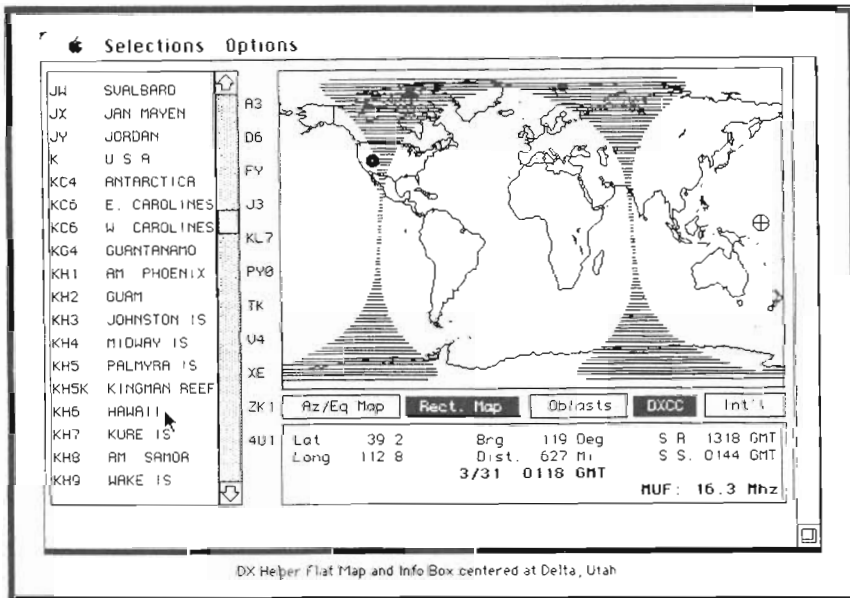
6--Will have a greater chance of being heard at sunset if its location is to the north of the DX'er's location, as well as to the east. This is due to the rotation of the earth about its 23 1/2 degree-tilted axis: The more northerly the location of the station, the shorter the amount of daylight hours during the winter day. Hence the more the "daytime" ionospheric conditions approximate "nighttime" ionospheric conditions. An extreme example of this would be Alaska, where, at mid-winter in the most northern latitudes, the sun never rises, even at noon. There, one DX'er with nighttime conditions 24 hours a day for several



erallanguages, for computation of sunrise-sunset times.

3—"DX Helper", a Macintosh program available from Antennas West (P. O. Box 50062-X, Provo, UT 84605.) or direct from MacTrak Software (P. O. Box 1590, Port Orchard, WA 98366.) Although intended for usage by amateur radio operators, this program will, through manipulation of the Mac's Alarm Clock, allow users to determine the sunset time of nearly any Latitude/Longitude on the surface of the earth (with, I've found, a plus-or-minus error of less than 10 miles in most cases, certainly more accurate for determining those "on-the-line" stations than simply referring to the Sunrise/Sunset Maps.)

4—Goode's World Atlas (or similar). For use with the Macintosh program above, this reference will allow the DX'er to look up any city in North America (or the world) and obtain the correct Latitude/Longitude of any Target city for comparison to DX Helper's Flat World Map. Careful manipulation of the mouse will yield a location within 10 miles or so of any spot on earth and display much usable data in an information box. A display screen for March 31 (of any year) follows:



As can be seen, the following pertinent MWDX information can be obtained from this display - In the box: Latitude and Longitude of the Target city (in this instance, Delta, Utah); bearing degrees from true north at which the Target city is located; the distance from the DX'er's location to Target city; Sunrise and sunset times on this particular day (in GMT); easily converted to PST for any day of the year that the DX'er selects; and (on the map): Location selected (depicted by the large black dot); high noon, wherever in the world it happens to be (depicted by the circle/cross); Gray-Line, separating daylight from darkness (width of Gray-Line depicts sunrise/sunset zones), date, and

current time. This program will also calculate Great Circle distances and display a Great Circle Map based on the DX'er's location. (Anyone possessing this piece of software who desires assistance on how to utilize it for MWDX purposes can feel free to contact me for more detailed info.)

#### Target Sheet Fabrication and Usage

The following info should be included for each of the Targets selected:

- 1—The Target station's call letters;
- 2—Target station's frequency;
- 3—Target station's daytime operating power;
- 4—Target station's nighttime power;
- 5—Target station's location (city and state and/or Latitude and Longitude);
- 6—Target station's local sunset time on the 15th of each month the DX'er anticipates attempting to log the station.

For reference, the following is a selected section of a recent Target sheet that I constructed on the Macintosh, utilizing MicroSoft File, Version 1.04 (stations sorted by frequency):

Call	Freq	Day	Nite	Location	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
KPUP	540	10000	500	Carmel Valley, CA	0	-15	-15	-15	0	0
CFJC	550	25000	5000	Kamloops, BC	+15	+30	+30	+45	+15	+15
KGEZ	600	5000	1000	Kajispeil, MT	+30	+45	+45	+45	+45	+30
CHNL	610	25000	5000	Kamloops, BC	+15	+30	+30	+45	+15	+15
KOJM	610	1000	1000	Havre, MT	+60	+60	+60	+75	+60	+45
KRVV	610	5000	----	Vail, CO	+60	?	+45	?	?	+60
KMCE	650	5000	5000	Rancho Cordova, CA	0	-15	0	0	0	0
KQOO	650	1000	500	Pullman, WA	+30	+30	+30	+30	+30	+15
KAPS	660	10000	1000	Mt. Vernon, WA	0	+15	+15	+15	+15	0
KGDP	660	10000	1000	Orcutt, CA	0	-15	-15	-15	0	0
KHKR	680	5000	----	E. Helena, MT	+45	+45	+45	+60	+60	+45
KBLL	690	1000	----	Blackfoot, ID	+45	+45	+30	+45	+45	+45
CKRD	700	5000	25000	Red Deer, AB	+60	+60	+60	+75	+60	+30
KKJZ	700	1000	500	Soledad, CA	0	-15	-15	-15	0	0
KMYJ	700	10000	1000	Newport, WA	+30	+30	+30	+45	+45	+15
KRMW	700	5000	1000	Silt, CO	+60	+45	+45	+45	+60	+60
KVOI	700	10000	1000	Oro Valley, AZ	+45	+30	+30	?	+45	+45
KSPD	740	500	----	Dishman, WA	+30	+30	+30	+30	+30	+15
KSPD	790	1000	----	Boise, ID	+30	+30	+15	+30	+30	+30
KFLT	830	50000	1000	Tucson, AZ	+45	+30	+30	+30	+45	+45

Target Sheet created using MicroSoft File

tion, we can determine that the potentially most productive times to attempt a logging of a Target in Kamloops, BC would be the months of October, February and March because of the fact that the local sunset is only 15 minutes ahead of sunset at my location, thereby assuring a nearly-total nighttime path between the two sites. January would appear to be the least potentially productive for reception due to the fact that my local sunset is 45 minutes behind Kamloop's, necessitating a signal path that must traverse much more daylight.

By contrast, sunset times for Carmel, California appear thus: 0, -15, -15, -15, 0, 0. For the months of October, February and March, local sunset for Carmel is the same as my location in Oregon (thus 0). During the months of November, December and January, sunset is actually 15 minutes after sunset at my location (thus -15). Any of the latter-mentioned months make Carmel a potentially productive Target due to the fact that any signal received from this area will be traversing total darkness and will thus not be subject to the daytime ionosphere's signal absorptive characteristics, but will still be operating with their higher daytime powers (if required to power-down at sunset), or will still be on the air (if required to sign-off at sunset).

To determine sunset time accurately, the Sunset Maps, road atlas and 12-inch ruler come into play. Admittedly, this method is not as accurate as utilizing "DX Helper" or referring to a Target town's local newspaper, but nevertheless, it is far more accurate than simply referring to the Sunset Maps alone and should be used whenever a potential Target is "on the line" and it is difficult or impossible to determine into which 15 minute sunset segment a Target falls. By placing the ruler (a piece of string might also be successfully used) on the 48 states map in the Road Atlas and approximately the sunset line (referring to the Sunset Map), it

becomes possible to determine on which side of the line the Target falls. It is imperative that the ruler be placed on the map in a manner that as closely as possible approximates the line on the Sunset Map. Pay close attention to "give-away" locator clues: where the sunset line crosses conspicuous river bends, grazes state corners, divides lakes, etc. Careful placement of the ruler (or string) should, in most cases, yield a definitive determination. Any Target still in question should be listed on the Target sheet as a "?" until the missing info can somehow be supplied (again you are referred to the newspaper section of the local library). In the meantime, the Target in question can simply be tried for during both of the 15 minute increments in which it might rise.

#### Target Sheet Helpful Hints

1—Although my recent Target sheets tend to sport 75 or more Targets ranging in location from northern Alberta to western New Mexico, it is advisable to keep the initial Target sheets unimposing; around 25 Targets is enough at the beginning.

2—West coast sunset DX'ers should also be realistic in their expectations: A 250-watt station from northern Saskatchewan is quite unlikely to be heard on the west coast at any time of the day, let alone sunset. A 10,000 watt or 50,000 watt station from adjacent states that signs off at sundown or powers-down to 1000 watts or less after dark is a much more realizable Target.

3—It is often helpful to highlight, with a fluorescent marker, those months when the local sunset times are at their smallest differential from the receiving site. This makes selecting a Target from the sheet an at-a-glance procedure. For example: The DX'er begins DX'ing at, say, one and one-quarter hours ahead of their local sunset in, say, November. Fifteen minutes

(continued on next page)

As can be seen, a large portion of the Target sheet is dedicated to listing the sign-off times for each Target, for each of the six winter months of the DX season: October, November, December, January, February and March. These are listed in minutes plus (or in certain rare instances minutes minus) the sunset time at the DX'er's reception location. For example, at my location in Oregon, Kamloops, British Columbia displays the following local sunset times: +15, +30, +30, +45, +15, +15 for the months of October, November, December, January, February and March, respectively. From the earlier discussion of Sunset Propaga-

(continued on next page)



will be spent DX'ing some or all of the frequencies where +75 is highlighted. Next, 15 minutes will be spent DX'ing all of the highlighted +60 stations, then the +45 stations, and so on, DX'ing in 15 minute increments until the 0 stations or -15 stations have been attempted. (Stations in the -30 category are rare, even from here in the Pacific Northwest).

4--When a potential Target becomes a logging, a line drawn through it on the Target sheet will delete it from further attempts, thereby assuring that valuable DX time is not wasted trying for an already-heard station.

5--Keep copious, detailed notes and become familiar with interfering unneeded stations on each frequency. This will allow the DX'er to immediately identify out-of-the-ordinary reception conditions when they occur and will allow those conditions to be fully exploited.

#### Ketchup on your DX

The systematized approach to sunset DX'ing outlined in this article should assist nearly any west coast DX'er eager to increase their Stations Heard totals by allowing them to log stations that they would normally not be able to hear. This method has been a part of my DX'ing Game Plan since 1982, when I first realized that DX'ing at sundown was infinitely more engrossing than a sleepy Saturday afternoon of The ESPN/Lysol Toilet Bowl game.

OK, I guess you *could* relieve Touchdown Tedium by doing your latrine duty: Go ahead and putty knife burger condiments from the roof over your head like you *promised*; if you put off the job one more time you'll not only find yourself doing it when there really is something interesting to watch on TV, but you'll probably also end up taking the heat for the ketchup being on the ceiling in the first place. Besides, maybe if you selflessly declare full responsibility for dwelling-wide ceiling care and maintenance, and consistently perform your duty with nary a whimper, your wife will notice and become so overwhelmed and touched (not to mention bewildered) that she will insist on doing everything else around the house, leaving you free to DX not only at sundown, but at any other time you want as well. Then again, maybe not... One thing's for sure: The ketchup is in no immediate danger of scraping itself off the ceiling. So be safe: The only *sure* way to beat Bowl Game Boredom is to settle in at the knobs. The ketchup will still be there tomorrow...

#### In The Aftermath...

Undoubtedly, the information submitted here is not new, nor am I the first to implement this type of approach; It was not my intent to imply such. My intent was to re-establish this approach for those west coast DX'ers who may have forgotten it and/or to suggest it to new DX'ers who may have never used it. I also wished to offer my suggestions/insights as to how this approach could be most efficiently utilized. In addition, it was my intent to support the various radio clubs mentioned in this article (all of which I am a member) by disseminating this information through their respective bulletins and "giving back" some of the fruits of my DX'ing experiences after years of exploiting the info in their bulletins for the single-minded

goal of increasing my Stations Heard totals.

Anyone newly-or currently-using this systematized sunset DX approach (or a variation of it) who would wish to offer comments/ suggestions/addendums concerning same is encouraged to contact me through the publisher of *DX News*.

\*

This article was processed and assembled on a Macintosh computer, utilizing various versions of MacWrite, FullPaint, MicroSoft File, Aldus PageMaker and DX Helper.

I would like to thank Mr. Randall Stegemeyer of Mac Trak Software for his time, correspondence and assistance in answering questions about DX Helper which ultimately led to my greater understanding of the software which, in turn, led to the construction of this article.

I also wish to thank Mr. Bill Hardy of Aberdeen, WA for supplying me with 1--encouragement to finish this article and 2-- copyright/public domain info for the Sunrise/Sunset maps.

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## The Answer Man

**R. J. Edmunds**

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Blue Bell, PA 19422-2052

"No Question Is A Dumb Question"

Answers to members' questions, from the basic to the technical

Hello, again. As promised, this edition of the Answerman column will be devoted to a series of questions relating to AM stereo which were posed last Spring.

**QUESTION:** Is there a good reference book or magazine article on this? I have heard of at least two systems, Kahn and Motorola. Where C-Quam fits into the picture, I don't know.

**ANSWER:** First, C-Quam is Motorola. Of the five proposed systems, Belar folded very early on, Magnavox went out in the early '80s, and in the late '80s, the Harris system (technically the best of the lot) threw in the towel, leaving Kahn-Hazeltine and Motorola C-Quam. This state of affairs is due to the F.C.C.'s abdication on the issue of choosing a standard for the industry. Canada and Australia are among other countries standardizing on C-Quam, while Japan is still running comparison tests between C-Quam and Kahn. To the best of my knowledge, there really isn't any reference source.

**QUESTION:** Is it feasible to make one's own detector for this? Where would one get a diagram, and for which system? Maybe switchable?

**ANSWER:** Motorola makes a decoding IC which is used in most AM stereo receivers which handle C-Quam, and it is available commercially, but at unknown cost. The circuitry might be obtained as a copy of the patent. Nothing is known to be available in the same manner for Kahn-Hazeltine.

**QUESTION:** Can you buy a receiver for this? Does a cheap consumer type which picks up FM stereo also now pick up AM stereo? Are there any manufacturers' standards for this?

**ANSWER:** No switchable receivers are currently marketed, although you might be able to pick up on a leftover or used Sony SRF-A100 or SRF-A1 portable AM/FM stereo receiver which did allow switching between the four remaining systems after Belar folded. Kahn-Hazeltine was the only one of the four not using phase modulation for the left-right components; that system split the sidebands, one for left, and the other, right.

AM stereo is currently available in all car radios in Chrysler products, and in most GM and Ford products, (mostly thanks to Motorola's position in the car radio manufacturing market), plus a select few by Volkswagen, and even fewer Japanese models. Radio Shack has at least one C-Quam-equipped retrofit car radio. Denon has recently introduced at least one high fidelity home tuner with both the new AM NRSC equalization curve and C-Quam stereo. Carver already had an AM/FM stereo tuner on the market. More are likely, now that the F.C.C. has authorized the new NRSC curves. In addition to the above, the Sangean SR-66 belt headphone radio is both AM (C-Quam) and FM stereo. The list on that is \$39.95, and a reference is available if you cannot locate one locally. Sony also manufactured, briefly, a "boom-box" with AM stereo, and a couple of car radio models, although I can't cite specific models. There is also a company in Moonachie, NJ, called Target Tuning Co., which is manufacturing fixed-tuned radios for AM and FM stereo stations to distribute as promotional items to their listeners.

**QUESTION:** When a station advertises AM stereo, how do you know which system is being used? Is there any way to tell on a conventional receiver if a station is broadcasting in stereo, maybe by detecting a subcarrier, or the like?

**ANSWER:** In all but about ten cases (most notably, KSL-1160, which is stereo only in the daytime), the predominant system is C-Quam, with about 600 stations nationwide. It uses a phase-modulated pilot tone which enables a receiver equipped with a stereo light to light the indicator. At one time, Kahn had over 100 stations. Otherwise, the issue is similar to determining the existence of an FM Stereo signal with a monaural receiver - you can't do it.



**QUESTION:** Does anyone listen to AM stereo? Would it be effective on a fringe station? Would it be badly affected by QRM or QRN?

**ANSWER:** Since there are an estimated fifteen million AM stereo receivers in vehicles today, plus the tuners and portables already mentioned, the answer is yes, although some consumers may be unaware that AM stereo exists, much less that they have the capability to receive it on their car radios. There doesn't seem to be much difference in fringe area reception between a stereo and a mono signal on AM. In fact, the now-discontinued Radio Shack "Realistic #31-1967" AM stereo tuner often lit its stereo light on the phase-modulated pilot tone when the signal received was too weak to make out! Likewise, QRM is about the same as with mono. Denon is apparently going to manufacture the long-promised "N. A. B. Super Radio", a tuner which will have all of the latest technology for the best AM and FM reception, including AM stereo, the NRSC curve, and AM noise-blanking, as well as the extended AM band (1600-1700 kHz.). It may be out late this year, but more probably sometime in 1991. It will be in the hundreds of dollars, but should be quite a receiver for listeners looking for fidelity, and may be a good DX receiver, too.

The F. C. C. is also studying several proposals to boost the status of AM, one of which would be a requirement that all AM's transmit in stereo, which hasn't even been done on FM.

AM stereo is capable of sounding as dimensional and effective as FM stereo. On a wideband NRSC-1 receiver, C-Quam AM stereo actually sounds better than FM stereo. Although NRSC is new, both Denon (as noted elsewhere herein) and Magnavox have already committed to manufacturing wideband receivers which meet this standard, and Sony is reportedly close to doing the same, so others should follow.

Whew! That's it for this round of AM stereo questions. Due to the nature of the questions and answers, I'm going to break with tradition for once, and thank my (only) source for these answers, Eric Norberg, whom I probably should list as guest editor for this column! 73's

KCRG - 1600  
5000 WATTS  
CEDAR RAPIDS, IA

TOWER TIP

IA-5

3 MILES

WHAT TO LOOK FOR: Three medium height self-supporting towers just to the southwest of the intersection of Mt. Vernon & Bertram Roads.

CONTRIBUTED BY: Doug Beard, Springville, IA

Send information about a.m. towers in your area to John D. Bowker  
14 Canoe Brook Drive, Princeton Jct., NJ 08550. Include a simple  
sketch that Bowker will redraw for DX NEWS.

## R-390A Audio Output Impedance Matching

by Dr. Dallas Lankford

Some people who use R-390As complain about hum, low audio output level, and poor frequency response. However, an R-390A has excellent audio quality and enough audio output power to drive you out of the room when used with an appropriate audio transformer which matches the 600 ohm audio output impedance to a speaker or headphones. The purpose of this note is to discuss appropriate audio impedance matching transformers for use with an R-390A.

The usual reason for hum and low audio output level with an R-390A is that low impedance headphones and a low impedance speaker, usually 8 ohms, are used without an audio transformer to match the 600 ohm audio output impedance to the low impedance load. A common cause of poor R-390A audio frequency response is the use of a military surplus LS-166 speaker. It has a built-in 600 to 8 ohm audio transformer and 8 ohm speaker, but the audio transformer has a limited frequency response of 350 to 3500 Hz. The LS-166 and similar speakers are designed for voice reception only.

The R-390A local audio output is rated as 500 milliwatts with less than 10% distortion into a 600 ohm load, and 1 milliwatt into a 600 ohm headset. The line output is rated as 10 milliwatts with less than 6% distortion into a 600 ohm balanced line. Measured maximum local audio output power before clipping is 1 watt into a 600 ohm load. Measured local audio frequency response is approximately flat from 100 to 10,000 Hz, and drops off slowly below 100 Hz and above 10,000 Hz.

One of the best ways to match the 600 ohm audio output impedance of an R-390A to low impedance headphones or a low impedance speaker is to use an audio line transformer. Line transformers come in two varieties - 25 volt line transformers, and 70.7 volt line transformers. They are designed for use with public address and audio distribution systems. The 25 volt line transformers are intended for use with amplifiers which have a 25 volt RMS maximum output, while the 70.7 volt line transformers are intended for use with amplifiers which have a 70.7 volt RMS maximum output. The 25 volt line transformers typically have primary taps with impedances which are multiples or fractions of 625 ohms (equivalently multiples or fractions of 1 watt). The 70.7 volt line transformers typically have primary taps with impedances which are multiples or fractions of 5000 ohms (equivalently multiples or fractions of 1 watt).

Currently I use a 25 volt line transformer, Stancor type A8089. The Stancor A8089 has primary taps marked 4, 2, 1, and 1/2 watt, and a secondary marked 8 ohms. Since the primary taps of a line transformer are often specified in watts, you will have to convert the watt ratings to ohms. For example, using the formula  $R = V^2/P$ , where R is the impedance in ohms, V is the voltage rating in volts RMS, and P is the power rating in watts, it follows that the 1/2 watt primary tap is  $R = 625/0.5 = 1250$  ohms, and similarly that the 1, 2, and 4 watt primary taps are 625, 312, and 156 ohms respectively. For a 70.7 volt line transformer with primary taps of 10, 5, 2.5, 1.25, and 0.62 watts, the equivalent primary impedances can be calculated as 500, 1000, 2000, 4000, and 8000 ohms respectively.

In my experience, it does not make any significant difference whether you match the R-390A 600 ohm audio output impedance with the 625 ohm primary tap of a 25 volt line transformer or the 500 ohm primary tap of a 70.7 volt line transformer. In fact, you can use a 1000 ohm or 1250 ohm primary tap of a line transformer; the only noticeable effect is a small decrease in maximum available audio output power.

The Stancor A8089 transformer is available from Fair Radio for \$3 plus shipping. Since Fair Radio has a \$10 minimum order, if you are not ordering other items from them, you might prefer to use the Radio Shack 70 volt line transformer, catalog number 32-1031, for \$5.95. The Radio Shack transformer has primary taps of 10/5/2.5/1.25/0.62 watts and secondary taps of 4/8/16 ohms.

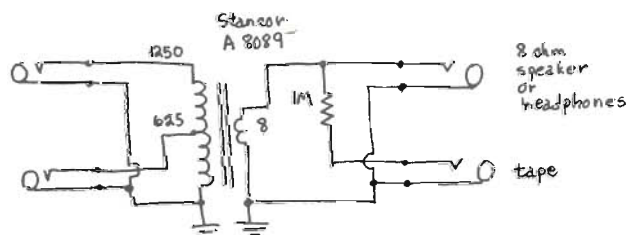
My current audio impedance matching adapter is shown in the following schematic. I used both the 625 and 1250 ohm primary taps of the Stancor A8089. I cut off the two extra primary tap leads flush with the primary windings. A 1 meg ohm half watt resistor was used to provide a tape output. The transformer was mounted in a small metal box with four standard 1/4 inch headphone jacks for input and output. Audio cables with standard 1/4 inch headphone plugs are used to connect the adapter to a speaker or to the headphone jack of the R-390A or other receiver. A homebrew audio cable with headphone plug on one end and lugs on the other end is required for connecting the adapter to the terminal strip on the R-390A rear panel. You should note that terminal 7 on the R-390A rear panel is audio ground. If you connect the mating audio cable incorrectly, you may experience a strong shock when handling the adapter box or audio plugs, or you may accidentally short circuit the R-390A audio output. For speaker use, the audio cable center conductor should go to terminal 6, and the audio cable braid should go to terminal 7 on the R-390A rear panel terminal strip.

The 625 ohm primary of my adapter is used with an R-390A. The 1250 ohm primary is used with the high impedance headphone jacks of other receivers, such as a Hammarlund HQ-180(A) or HQ-150.

Perhaps it is appropriate to mention here that I have observed unnecessary replacement of power supply electrolytics in two HQ-180A receivers, probably as a consequence of



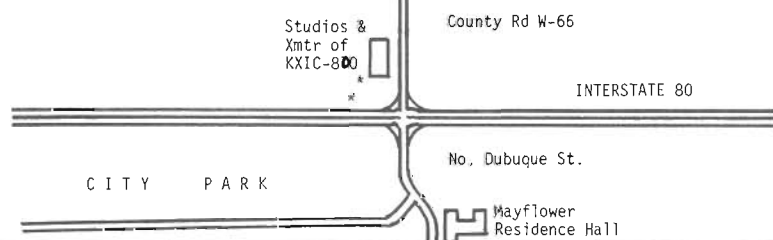
unsuccessful attempts to eliminate hum from headphone audio output. In one case, new electrolytic capacitors were dangled from the wiring which had been disconnected from the original metal can multi-section electrolytic. In another case, an intermittent loss of B+ power was traced to unsoldered connections at the multi-section electrolytic lugs; the unsoldered leads had been stuck back through the solder lugs without recrimping and resoldering them. After the careless and unnecessary tamperings had been repaired, and an audio impedance matching adapter was used, the headphone audio output of these two HQ-180As was excellent.



## TOWER TIP

IA-10

KXIC - 800  
1 KW-D; 190 W-N  
IOWA CITY, IOWA



WHAT TO LOOK FOR: Two guyed and lighted towers oriented in a northeast-southwest direction easily visible for several miles on either side of Interchange 244 on I-80

SUBMITTED BY: RICK DAU, Oakland, Iowa

Send information about a.m. broadcast towers in your area to John D. Bowker, 14 Canoe Brook Drive, Princeton Jct., NJ 08550. Include a simple map of the nearby highways and landmarks. Tell how many towers, how they are laid out, and any other information that will help in spotting each station.

## Facts About NRC's DX Audio Service

The DX Audio Service, now in its third year of operation, provides the ONLY monthly broadcast news cassette service to the DX community.

The DX Audio Service, available to anyone anywhere, is designed to inform the radio listener in a way that is pleasing and informative. Many of the announcers on the service are professional broadcasters giving their free time to give the listener the finest service available.

DXAS was started to provide broadcast information, both AM and FM to the blind DX listener. It has evolved into a service which provides useful material to all types of listeners. Many of our subscribers listen to the tape to and from their place of work while driving down the road.

One-year subscription, subscriber keeps the cassette each month: \$25 Sample copy, back issues of DXAS: \$3 Cassettes are mailed by First Class mail, on or about the 20th of the month. Information, subscriptions, renewals, sample copies: write to NRC DX Audio Service - P. O. Box 24 - Cambridge, WI 53523-0024. For back issues: NRC Publications.

## The Answer Man

Got a question about radio? Send it to Russ Edmunds - 753 Valley Rd. - Blue Bell, PA 19422-2052. No question is a dumb question, and Russ will answer all, from basic to highly technical. Watch for the answer in DX News!

## Musings

of the Members

Dave Schmidt

P. O. Box 11502

Wilmington, DE 19850

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.

**BOB SMOLAREK - 156 OLDWICK ROAD - WHITEHOUSE STATION, NJ 08889**

Greetings from the land of high taxes, New Jersey! I would like to congratulate John Malicky for a great job with the convention, what a thrill to see the transmitter of KDRA. The two guest speakers were excellent, I wish they could have spoken longer. Digital broadcasting may eliminate our hobby so DX now before it's too late! The changes at WCAU-1210 were alarming, but there is one good thing about it, now there are two stations on the band that come in well at night that program popular music, WOGL & WOWO. I don't think AM should go to totally talk. On the local scene, WKAP-1320 has gone from satellite AC to satellite delivered Oldies Channel, they had to do something as their ratings had fallen. Crosstown WAEB-790 has eliminated most of their music and if they play any, it oldies. I've noticed that the new CHFX-990 is the new dominant on the channel, replacing WRMM. One evening, I heard two newbies on 850, WJAC-PA & WYLF-NY. I suspect a pattern change at WJAC. (Or a lack of change!-DS)

**GUY KUDLEMYER - 1320 CITY VIEW #1 - EUGENE, OR 97402-6712**

With the new season upon us, I hope to be more active in the hobby and report more often (I say that every year don't I?). The changing of the seasons and the falling of the leaves has rekindled the DX'ing fire in me, so we'll see. In the last 6 months, I've been presented with several opportunities to DX from various locations in Nevada. Unfortunately, I didn't always answer the bell due to (understandable) distractions. To wit: in the middle of May, I flew on a business trip to Las Vegas, via LA, spent 8 days in Vegas, but in the evening when I wasn't working, I was more drawn to the casinos than to the receiver. With the Mirage, Caesar's Palace and The Rio being my favorite Vegas hangouts, I had plenty to fill my nights. In addition, another of my passions (besides DX'ing) is consuming tasty Mexican cuisine, so I don't need to single-handedly keep Ricardo's, Garcia's & the Santa Fe in business. Consequently, the TRF stayed in the suitcase. Late June saw me on another business trip, this time to Reno by car. After completing the days business each day, The Eldorado & The Peppermill got most of my attention (and money!). What little money I won was spent slamming Chili Rellenos at Tres Hombres. Early July caught me in Elko (where?). With the Red Lion being the only casino in town and El Sombrero #2 having the only decent Mexican grub, I had less distractions. So, armed with my Sony SKFN40W, a Select-A-Tenna, the Red Lion's excellent hotel room air conditioner, and a 6 pack of Rattlesnake beer (yes, Rattlesnake beer), the DX'ing finally happened. Unfortunately, nothing of any import was logged, everything heard had already been logged from my home port of Eugene. The most exciting thing heard was a weather update from KLO where they were experiencing 60 MPH winds and a severe storm. The return trip took me north from Winnemucca thru Denio Jct. to Lakeview, OR. This area would be an excellent area to string up some beverages as the terrain is relatively flat and there are no people, hence no noise. According to the Goode's World Atlas, this is the least populated area in all the 50 states (excluding AK) with an average population per sq. mile being under two! Everything heard from here is DX! I drove the entire 215 miles at speeds over 85 MPH and never saw any highway patrol or other form of law enforcement. In fact, I only saw 3 other cars, 2 of which passed me going the same direction. Next trip thru, I may look into purchasing a few acres of land here.

**WENDELL FORD - WESTVILLE, IN**

Hello, hello! First muse of the 90's from me, usually whatever I have to say, I say in DDKD-East. But I am done typing the 91 AM log and I thought I'd bring everybody up to date on just how many stations there are. Took me 44 days of mainly 12:30AM-3:30 AM time of day typing but finally am done typing my 4th personal log. Adds up to 20 thousand stations and no more finger tips! In the 91 log, there are 5495 stations, this does not include TIS stations, nor stations outside the continental US & Canada, HI & AK are included and none under 250 watts. FM Atlas #13 is on order so I'll probably be working on it when you read this, so I'll be typing right up to the December holidays. 73's

**ROGER WINSOR - 5012 E 27th AVENUE - LAKE STATION, IN 46405 (219-962-2538)**

Hello to all! It has been a very long time since I have Mused, so here goes! Please note the new address and phone #, we have been here since April. I am very close to 194 and would appreciate any visitors who might be coming this way. I am off Sat-Sun only, work from 7A-10P daily as a driver-salesman for Schwan Ice Cream and working every minute of it. Earlier this month I was at the home office in Marshall, MN for a week. I had the use of a car and heard many interesting stations. The local there was KMHL-1400, with CW days and Larry King at night. The groundwave is immense, hearing stations in the daytime



ranging from KBHB-810 SD to WLW-700 OH. It sounded strange to hear WLS-890 under KQLS Lisbon, ND. AS for DX, the total has crept up to 3063 heard. The latest being 10/15 with WHOT-1390 in/out under dusty WGCI, now with a black oldies format, KLTF-960 MN w/CBS BB and local ads on nite power of 38 watts. CHTX-990 "Montreal 990" with American top 40 in all evening. 10/12 while driving home, I happened by 830 and who was there all alone but WWMO NC mentioning 24 hour operation and religious programming. WMEQ-880 has been nabbed finally on 9/27 with Talknet and ID at 7P in a WLS pause. Now that they are all talk, 880 & 900 are easy to hear, as only the announcer voice splashes over and lots of times they are quiet while the phone in people talk. Locally, not much change. WACA-1270 has absolutely the worst tinny audio I have ever heard, often has xmtr failure and should just sign off the air. It splashes from 1250 to 1290 something fierce. WCFJ-1470 also has frequent xmtr failure, both low budget REL stations. My Superadio needs some work I guess. Rick Evans stopped by and we compared them, mine was terrible, his was great. I don't even know how to take it apart without breaking something. That's it til next time.

**ERNEST COOPER - 5 ANTHONY STREET - PROVINCETOWN, MA 02657 508-487-9337**

Now that the Major League Playoffs and the World Series are over, I can settle back into my routine of DX'ing between approx. 1:30-3A once again. I have done a little tuning, however. ON MM 9/17 @ 0152, I noted a TT on 1310 which went off at 0154 with no announcement. WZRC-1480 was noted but way under CHR. Then on Tues. AM 9/18 on 1480, I noted a UNID with a tele-talk show on religious themes. And on 1610, I heard a few words, to wit: "State legislature passes...." & "opportunities for hiking..." at 0219 and 0227 respectively. Around 0239, there was a series of the letter U in Morse Code on that freq. SM 9/30 with WPLM-1390 on its regular silent period, WFBL was top dog. MM 10/1 back on 1610, this time a muffled voice over music at 0211, followed by the song "Am I Afraid of Living?". WWVA-1170 was on OC today. Looking for CHTX-990, I found only WRRM & WZ2D, no sign of the Canadian, maybe it isn't an allnighter? Tues 10/2, somebody testing with TT on/off til 0221 on 990, off with no announcements. WRRM was on RS so it wasn't them. SM 10/14, I decided to try for the WFAW-940 test, not heard, only CBM's OC and the Cuban Minute Man. But a solid signal on 740 at 0515 caught my attention and it announced as 'VOCM 590' and gave the time 1 1/2 hours ahead of EDT. I believe this is CHCM, moved here from 560khz where a new VOCM relay in Spaniards Bay is scheduled to open. They're on way ahead of CBL on Sundays and are a best bet for Newfoundland for you folks in the midwest. I attended the IRCA's Knoxville Convention held in conjunction with Monitoring Times magazine over the Columbus Day weekend. It was mostly for SW DX'ers of all types of services. We did visit two Knoxville stations, WIVK-990 & WUTK-91.9. My flight home was a thriller, as we were held on the runway at Washington's Dulles Airport for 1 1/2 hours because of violent weather in Boston. When we did get in the Boston area, we were in extremely thick, dark fog, it was like flying through chocolate pudding! When the wheels finally did touch down, the whole plane load broke into applause! And my flight from Boston to Provincetown was canceled for the same heavy fog conditions, so I took the bus to Hyannis and holed up there overnight as there was no transportation to Provincetown till the next morning. The Friendly Skies sure were angry that day (10/8)! Forward - March!

**HARRY HAYES - 9 HENRY STREET - WILKES BARRE, PA 18702**

I would like to comment this time about digital broadcasting, at least the way it is perceived by its proponents and by we DX'ers. First off, let me say that I am not anti digital radio. To be so would be to be anti progress. What I do have a problem with are digital radio's proponents cut and dry vision that digital broadcasting, pending FCC approval of course, will be introduced in 1995 and that by 2005, will have replaced AM & FM broadcasting. If this happens in 10 years, it will be because of industry pressure to change over, not because of public acceptance of one system, digital broadcasting and the rejection of another, AM-FM broadcasting. When fm was introduced in the late 40's, why didn't this new form of broadcasting eliminate AM radio? I think everyone will agree that FM has clearer audio. you could say that: "Well, there weren't enough FM receivers manufactured and that FM wasn't promoted enough". You could also ask why wasn't until the late 70's before AM/FM listenership equalled 50/50. After all, there were plenty of FM receivers around in the late 60's through to that time. Even now AM radio still enjoys a sizable listenership. Why? Because absolutely perfect audio quality will not draw listeners alone. What led to AM's decline in the first place? I won't say that audio considerations didn't play a roll in the decline but more importantly the public's change in taste for popular music led to FM's rapid ascent. Through-out the 70's, popular music split up into several different formats like album rock, soft rock, disco, you name it. No longer could a typical Top 40 AM station satisfy all tastes with what was happening with music at this time, thus a moderate decline in listenership resulted with a deflection by those listeners to more specialized formats on FM. The AM stations noting this decline scrapped their popular formats that they thought were dying and opted for a whole range of obtuse formats like talk, Music of Your Life and CW.

By doing this AM broadcasters cut their own throats when this caused an even deeper decline in listenership. Had the AM broadcasters stuck to their guns I think they would be doing much better today. Granted these are only my theories but I do believe formats have a much greater influence in pulling in listeners than just sound quality does. I don't buy the idea that digital radio will come out and hundreds of thousands of potential radio buyers will say "oh wow! Sounds just like CD's coming out of a radio" and then immediately proceed to junk all of their AM-FM sets. Digital radio will come about in exclusivity in 10 years only if manufacturing interests "inflict" it on the public as has been done with CD's over vinyl. In all probability it will happen just that way.

**DAVE SCHMIDT - P O BOX 11502 - WILMINGTON, DE 19850**

And that is everything received here thru 10/27, with this going out 10/28. Deadlines are Saturday. Harry brought up some interesting points in his above report, and I would be most interested in seeing how the digital system will work under "real world" conditions, such as what mountains due to FM signals in areas such as western NC and SW VA, cities such as NYC (ever try to listen to FM while driving 42nd street?). There is a lot more to it, I think, then what they're eyeing up now. Tried for the WFAW-940 test, no sign of it here (listened back to tape about 5 times). A number of semi-local and thru the grapevine format changes have been sent to Mr. Tony. And that it for this week, all reports are welcomed, sticking with the radio related/DX related info. 73's

**TOWER TIP** VT-2      WHITE RIVER JUNCTION, VT      WNHV - 910  
1000 WATTS

WHAT TO LOOK FOR: About 1 mile south of I-89/I-91 intersection look for single short tower & WNHV studio bldg 200 yards to west.

CONTRIBUTED BY: J.D. Bowker

Send information about a.m. broadcast towers in your area to John D. Bowker, 14 Canoe Brook Drive, Princeton Jct., NJ 08550. Include a simple map (Bowker may re-draw it) showing major highways and any other terrain features near the tower(s). Tell how many towers, how they are laid out, and any other features that will help in spotting them.

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