

dx news



the magazine of the National Radio Club

VOLUME 42

25 NOVEMBER 1974

NUMBER 7

"This space for rent --
send you quotable DX
quotes (keep it clean,
please) in to be used
here" - HQ



ON THE INSIDE.....

- The Heath SB-620 Spectrum Analyser - Bob Foxworth (Part 1 appears herein. Too much regular copy to run entire thing at once as planned earlier-RJE)
- NRC Achievement Awards - Norm Maguire
- An NRC Telephone DX'ing Dingbat - Wes Boyd
- Heterodynes - Ken Brownless (Reprinted with permission from Medium Wave News)

NEW MEMBERS

- Loyal Richmond, 840 N. Spruce, #95, Rapid City, SD 57701 (re-joins)
- George Kelley, 56 Fairmont St., Arlington, MA 02174 (re-joins)
- * Peter Campbell, Box 51, Naval Air Station, FPO San Francisco, 96637
- * Mike J. Maloney, 1500 S. Elm, Bartlesville, OK 74003
- Gilles Auger, 5592 St.-Donat, Anjou, P.Q., CANADA
- * J. A. Krol, 15859 LeClaire, 108B, Oak Forest, IL 60452

RENEWALS

B. Dangerfield, B. Cronin, J. Hagan, G. Greene, E. Krejny, J. Javetski, J. Smedley, W. Plunkett, G. Calkin, P. Hart, C. Adamson.

FLASH TIPS & SUCHLIKE

Per TRS: WOND-1400 TEST a few weeks back was on. 11/4 WLOR-730 hrd., KHUB-1340 not hrd. 11/9 WTAW-1150 not hrd (or by anyone else-RJE); 11/11 WCSJ-1550 hrd o/u WYNA ET (WYNA only made it here-RJE) WTKM-1540 not hrd. Per Kurt Nelson: WTKM hrd w/TTS on & off ard. 0315. Dick Truax hrd KDLT-540, WCSJ-1550 & WTKM-1540. Others hrd all, including KMEO-740. See DDXD. No word here re 11/18 TESTS. No HQ people tried them -- too late and cx too bad. Large-ish aurora happened ard THU 11/14. Band mostly LA's that eve, w/many channels only hets of many types. FRI 11/15 more of same, but some of the clears now making it in on E-skip of the sporadic variety. SUN 11/17 still quite auroral at early SSS, but got worse later.

*****TWO LATE TESTS- SEE PG.42

NOTES &c FROM NJPC

- Info listed re FBIS logs here a few months back turns out to be erroneous per TRS who tried in vain to order the new 26th edition (complete thru 7/1/73) which in reality isn't available yet. More info as it becomes known.
- We still have bunches of copies of the NRC Antenna Manual, comprising a number of reprint articles into one handbook. Cost is still \$2.25 postpaid.
- Next week is a skip for Thanksgiving. The editors will have to work over Thanksgiving on the issue to be dated 12/8, but the break is positioned to accommodate the printer and address-label people who don't work Thanksgiving or the day after.

WE BLEW IT AGAIN DEPT. : We listed Ralph Sanserino's address last week, and we re-iterated the incorrect address again. It's 8422 Crane Circle, not 3422.....

C. P. C. TEST SCHEDULE

WEDNESDAY	NOV.	25	- 0200-0300	* KFUP-850	* Clayton, MO	5000 U	NNRC
			- 0300-0330	* KPUB-1480	* Pueblo, CO	1000 D	NRC
			- 0330-0400	* KDUN-1470	* Reedsport, OR	5000 D	NRC
WEDNESDAY	DEC.	02	- 0200-0230	* KHEL-1490	* Brady, TX	1000/250 U	NNRC
			- 0300-0330	* WHBN-1420	* Harrodsburg, KY	1000 D	NRC
			-	* KCCS-1220	* Salem, OR	1000 D	NRC
			-	* KRME-1160	* Hondo, TX	500 D	NNRC
TUESDAY		03	- 0400-	* KLFJ-1550	* Springfield, MO	500 D	NRC/IRCA
THURSDAY		05	- 0000-	* WJLX-1310	* Asbury Park, NJ	1000/250 U	NNRC
FRIDAY		06	- 0300-0330	* WTCB-1050	* Plymouth, IN	250 D	NRC
MONDAY		09	- 0330-0400	* KJST-1340	* Jackson, WY	1000/250 U	NRC
			- 0230-0300	* KSNW-1560	* Blue Earth, MN	1000 D	NRC
			- 0300-	* WJLT-1520	* Ocean City-Somer's Point, NJ	1000 D	NNRC
			- 0330-0400	* KFOP-1420	* Pocahontas, AR	1000 D	NRC
WEDNESDAY		23	- 0300-0500	* WQAN-560	* Miami Beach, FL	5000/1000 U	NNRC
			- 0500-0600	* KONO-570	* Alturas, CA	5000 D	NNRC
			- 0600-0600	* KAPT-550	* Bakersfield, CA	1000 U	NNRC
MONDAY		30	- 0330-0400	* KTUS-1120	* Hobart, OK	1000 D	NRC
TUESDAY		31	- 0300-0400	* WQAG-580	* Augusta, GA	5000/1000 U	NNRC
MONDAY	JAN.	06	- 0100-	* WJLJ-1570	* Beverly, MA	500 D	NNRC
			- 0200-0400	* WJMS-1420	* Michigan City, IN	5000/500 U	NNRC
			- 0200-0550	* WJAG-730	* Chicopee, MA	5000 D	NNRC
			- 0245-0315	* WQON-860	* Marion, IN	250 D	NNRC
			- 0300-	* WABW-1440	* Worcester, MA	5000 U	NNRC
			- 0330-0400	* KPTB-860	* Ft. Stockton, TX	250 D	NRC
WEDNESDAY		13	- 0000-0300	* WJMJ-1440	* Morgantown, WV	5000/500 U	NNRC
			- 0200-0300	* WITF-960	* Danville, IL	1000 U	NNRC
TUESDAY		14	- 0100-	* WJSP-970	* Southbridge, MA	1000 D	NNRC
MONDAY		20	- 0130-0200	* WJAP-1470	* Farrell, PA	1000/500 U	NNRC
MONDAY	FEB.	03	- 0230-0300	* WJBS-590	* Uniontown, PA	1000 U	NNRC
MONDAY		10	- 0100-0200	* WJHL-1400	* Galesburg, IL	1000/250 U	NNRC
MONDAY		17	- 0400-0500	* KCRB-780	* Reno, NV	50000 U	NNRC
MONDAY		24	- 0230-	* WJTT-1410	* Watertown, NY	5000/1000 U	NNRC
WEDNESDAY		26	- 0030-0100	* WJCT-1550	* W. Hartford, CT	1000 D	NNRC

KFUP - MoR mx w/ frequent voice IDs. Phone calls (not collect) ok at (314) 725-3030. V/s: John Fischer, CE, 801 De Mun Ave., St. Louis, 63105. Arr. Lou Buehler, NNRC.

KPUB - No program details. V/s: Ace Ball, Box 831, 81002. Arr. Dabelstein, NRC.

KDUN - No program details. V/s: Wes Lockard, CE, Box 471, 97467. Arr. Dabelstein.

KHEL - Tempo rr & c/w mx, probably CW IDs every 5 mins. V/s: Gerry Dalton, PD, P.O. Box 630, Brady, 76825. Arr. Larry Ledlow, NNRC.

WHBN - No program details. V/s: Tom Devine, CE, Box 247, 40330. Arr. Dabelstein.

KCCS - No program details. V/s: Dale Brown, St M., 2808 Market St., NE, 97301. Arr. Skip Dabelstein, NRC.

KRME - No program details. V/s: Jim Fridle, Box 447, 78861. Arr. Ledlow.

Continued on Page 42.....

international dx digest

editor.. Alan Merriman
P. O. Box 6
Fairfax, Va. 22030

*Phone 703-354-2135 before 2200 EST * All Times are GMT * Deadlines are Saturday*

Conditions continue rather poor in the East, apparently much better in the West. Phone call from Bob Foxworth last night (11/15) indicated condx very auroral, I was a bit "under the weather" and in no shape to check things out, hi. From Ron Schatz "Condx suck" to which I agree fully. Hank Wilkinson "Week end of 11/10 and 11/11 not as good as 11/3 and 11/4 in the Asian-Pacific area. Signals were weaker and fading for longer periods! Don Reynolds "Condx seem to be improving again after a drought for the past few weeks. Monday 11/11 was fine for Asia with little heard from Latin America! Now, whats been heard

548 -UNID Carrier here 11/4 at 1148 and 1227, no audio heard, S5 level. Likely Vladivostock. (Seaver)

550 -COLOMBIA Medellin (?), "Radio Ya" ("up to date radio") noted AN 11/16 0500 w/CMAN off for maintenance. Standard Colombian fare and frequent emphatic "Radio - (pause) - Ya" IDs and "Ya" promos. Much QRM de Mundial. (Schatz) -VENEZUELA Caracas, "Radio Mundial" noted mostly on top of "Ya" 11/16 0500 w/CMAN off. Ided mostly as "Mundial". Frequent GMT -4 TCs. (Schatz)

575 -UNID Carrier here 11/4, 1106, S7, no audio heard (KIAC on 570). Likely RSFSR (Sredne-Kolymsk or Vladivostock area). (Seaver)

584 -USSR FES Station, WRTH says Svobodny which is MW of Khabarovsk. Heard w/R. Moscow chimes (?) at 1200 and 1230 on 11/10. (Wilkinson)

615 -UNID Probably PR China regional from 620 or a new outlet. Good level at times (S7-8) 11/4 1102, 1129, 1222 checks, but slop from KOGO rough. Typical China program, YL and OM talk, yell, etc. Very strident and animated. Needs work. (Seaver)

645 -CHINA Peking CPBS1 outlet (listed 270 kw) heard 11/4 1050 and on, up to S7. Typical home service program (YL talk and music). (Seaver)

-NORTH KOREA Pyongyang, 11/5 0910+ femme ancr, chanting, lower volume than // 655 but here very early. (Vernon) Hmm. Seems unlikely there would be a Korean and Chinese on this freq. Sure this was // 655? (ED)

647 -USSR Russian Foreign Service outlet in the Vladivostock-Khabarovsk area heard well most MMs, high power (100-300 kw) w/Chinese and Korean services. Levels up to S8 (comparable to NK-655, JOIB-750). Heard 10/14 1030 w/Kremlin bells and into CC program. On 11/4, heard w/Kremlin bells at 1100, ID in CC as "???" Kwangpo Tientai" by OM, then "Moscv (??) Kwangpo Tientai" by YL, and into CC program. At 1130 went into Korean, and at 1200 into CC again. The Chinese service has bells at 1100, 50 seconds worth, then lead in mx (w/YL voice over briefly), then IDs and into more talk. The Korean segment, had bells at 1130, a martial anthem, then YL talk (ID?) and into program. Some gongs heard at 1150. (Seaver) *Don't know location. (Jman w/50 kw listed, ED) Heard w/fair to good signals (off and on) on both 11/10-11. (Wilkinson) * 11/11 1115. Heard w/KFI off. Man and woman talking (Language?). Russian mx. Bells at 1130 followed by what sounded like anthem (not sure if Russian National Anthem, could not make out) then more talking by same man and woman.

655 -NORTH KOREA Pyongyang, 1st net outlet here nearly every AM at S8+ (Lobel) levels 11/4 1057-1101 w/3 low pips and 4th high on hour, followed by unreadable ID. A lot of FE in this range with 625,635,645 (listed), 655 North Koreans, 615,645 Chinese, 647,655,665 RSFSR, SVN on 655. (Seaver) * 11/3 1403 w/band mx, then femme ancr, chanting, finally faded at 1438, but heard Asian mx under 1422-1424, maybe Vietnam? (Vernon)

665 -RSFSR (Tentative) I've heard a carrier and some audio here all fall when cx are good. This is likely the Russian home service outlet listed by Ryden in IDXD last year. (Komsomolsk-Amur listed). (Seaver)

700 -AUSTRALIA 2NR Grafton, NSW heard w/S5-6 signals from 1253-1303 on 11/11. 1st Aussie at this location. (Wilkinson)

This is last IDXD for 2 weeks. All material for next issue must be here by Friday, 11/29. This is necessary as I will be in Jersey that weekend. REPORT !!! 124

- 705 -THAILAND Wor Phor Thor, Bangkok most certainly believed to be Asiatic stn heard MM 11/11 at 1022 w/pop US songs w/Thai vocalists. Steady signals until fade-out began at 1050. Wiped out by local KMPC s/on at 1100. Loop bearing perfect for Bangkok. Good tape made. Tentative report sent. (Reynolds) See next item. This seems more likely. No DU bulletins here for a month or so, so I don't know what they are reporting. (ED)
- UNID Loud Oriental stn w/varied "live" musical program heard at 1137 on 11/10 Believed to be HLKA Seoul, South Korea. Heard again at 1135 and 1314 on 11/11 playing and singing modern mx in oriental style. (Wilkinson)
- 712 -UNID UFO here, 95% sure it's Korean, likely HLKA nominal 710. Heard 11/4 1024. KMPC was on at 1100 and CC before so no chance for ID at 1055. (Seaver) *HLKA seems to be floating around its nominal frequency of 710. Care should be taken when IDing "mysterious" stations in this area. (ED)
- 725 -NORTH KOREA Pyongyang 2nd net outlet fair-good 11/4 at 1245 and fair (S6) at 1110. Parallel 785 and 877 at times heard. (Seaver)
- SURINAM SRS Paramairibo very well heard at 0305 on 11/9 w/man giving speech in DD. Very steady signal for perfect copy, but unneeded here. (Reynolds)
- 735 -NORTH KOREA Pyongyang 1st net outlet poor-fair 11/4 at checks 1020, 1105, 1155 //655. (Seaver)
- 750 -JAPAN JOIB Sapporo, NHK 2nd net strong nearly every AM 0930 on, on 11/4 EE lessons to 1000, three low pips, 4th high pip on the hour, then news in EE 1000-1015. Announced NHK as lead-in to the news. (Seaver) * In very loud after 1100 MM 11/11 w/2 men giving JJ/EE language lessons. Overriding everything w/solid armchair copy. (Reynolds)
- 770 -JAPAN JOUB Akita 11/3 w/JJ to EE lessons, w/male and femme ancr //830-870, from 1253 to 1300 o/u KOB, which had religious program. KYA crashed in at 1300 following JJ bleeps. (Vernon) (Schatz)
- 775 -COSTA RICA (tentative) San Jose (tentatively) the home of a new "La Exitosa" AN w/EE and SS rock. Frequent "Esta es la Exitosa" jingles done in 50's rock style. Few commercials and formal IDs, so can't grab location so far but it smells strongly of former "R. City". Exitosa means "full of hits".
- 783 -UNID 11/5, maybe Cuban, was SS. Big het, then audio 1023-1026 w/male and femme ancr, w/cathedral type bells, then just femme ancr alternating between chimes till it faded. (Vernon) (Lobel)
- 830 -JAPAN JOBB Osaka, 11/11 1200. Poor reception w/pips and man in JJ u/WCCO. A few minutes earlier they were broadcasting what sounded like an EE lesson.
- 835 -CHINA Kiangsi regional (presumed) here at fair level (S6-7) 11/4 at 1136, 1157, 1210 w/typical YL and OM talk and yelling. (Seaver)
- 860 -BRAZIL R. Mundial, Rio de Janeiro, heard w/some noise, song by a man, on 11/3 at 0135. (Objio)
- 870 -COLOMBIA La Voz del Tolima, Ibague, almost at the same time as R. Libertador, IDing, pop mx. 11/3 0130. (Objio)
- VENEZUELA R. Libertador, Caracas, still here, heard on 11/3 IDing at 0130 w/R. Clarin off on All Souls Day. (Objio)
- 877 -NORTH KOREA Wonsan 2nd net outlet heard fair 11/4 1210 w/OM harangue, 1257-1302 w/anthem, YL, 3 low, 4th very high pips on hour, then into OM harangue. (Seaver) * Heard at excellent level w/solid copy 0927-1008 MM 11/11. Good mx, singing and speaking in KK. Time pips exactly at 1000 (3 regular pips followed by one quicky slightly higher note). Best ever heard here. Solid tape made. Good report sent. (Reynolds)
- 890 -CUBA [Unid] 11/7 0520 w/light orch. mx, femme ancr between mx, ID at 0600 sounded like "Radio---? National ---? Cuba, transmittoria ---? America. Was wavy at 0600 but steady other times, doesn't check out w/WRTH. (Vernon)
- VENEZUELA R. Lara, Barquisimeto, ads, pop mx, good on 11/3 at 0135. (Objio)
- 885 -MONTSERRAT ZJB Plymouth very good signal w/native Caribbean singing and EE armts 0245 on 11/9. This one quite loud lately; possible power increase?
- 890 -JAPAN JOHK Sendai, 11/11 1212. Heard well until 1259 when lo-/(Reynolds) cal KDEO-910 came back on the air; slop from KDEO was too much. Japanese style mx w/man in JJ. (Lobel)
- VENEZUELA R. America, Valencia, announcing bullfight for next sunday, w/Continental off at 0133 on 11/3. (Objio)
- 960 -NETHERLANDS ANTILLES PJA6 R. Victoria, Aruba, discovered here by Richard Clark, heard again on 11/3. I don't think this is a good frequency for Lima as R. Sutatenza is stronger w/120 kw. (Objio, info also from Schatz)
- 1000 -VENEZUELA R. Mil, Moron, ID at 0140 on 11/3, pop mx. (Objio)
- 1035 -PANAMA HOS21, R. Union very good signal w/2 men talking SS at 0255 on 11/9. No sign of Haiti at this time. (Reynolds)
- 1045 -PANAMA HOJ2, Las Tablas in ve ry well at 0215 on 11/9. No slogan heard. best ever for this one, but unneeded here. (Reynolds) (Sundstrom)
- 1060 -CUBA CMBQ R. Enciclopedia Nacional, Havana, 10/28 w/ID 0803 atop freq, but couldn't follow several SS conversations following. Good ID. New.
- 1070 -MEXICO XESP Guadajara, Jalisco "Radio Juventud" tentative through KNX 11/11 0350-0420 w/national spots (Superior beer, etc) and rock mx. Inquiry sent to the station. Seems likely that this is the one, since there was a very good opening to this area of Mexico that night (see 1170). (Gleason)
- 1130V -COLOMBIA Emisora Ricmar, Barranquilla noted directly into anthem and off following TODELAR news 11/16 0530. Slightly off freq; het disappeared after carrier cut. (Schatz)
- 1150 -VENEZUELA Ondas del Caribe, Punto Fijo IDing at 0143 on 11/3, pop mx. (Objio)
- 1170 -COLOMBIA Cartagena, "La Voz de la Heroica" announcing 15 kw power. (Schatz)
- MEXICO (Unid) 11/11 0430-0515. Romantic mx till 0503, after which went 3 minutes late into La Hora Nacional. Was very rough w/KVOO-KCQB. Earlier in the evening, caught s/off of XEXF-1140 100% readable, and best ever heard, and had XELEO-1110 very good, plus others in the central region, leading me to believe that I had XELP, La Riedad, Michoacan. Tentative sent to them and XECD, the only other possibility. (Gleason)
- 1180 -DOMESTIC VOA Marathon Key, heard w/nx in SS all evening w/R. Mill off. (Objio)
- MEXICO XEPR Mexico, DF Radio Felicidad 11/11 1205-1215 w/SS rock, clear IDs as both Radio Felicidad and "X E F R, Mill ciento ochenta kilociclos desde la Ciudad de Mexico". (Gleason)
- 1210 -VENEZUELA Barcelona, "Radio Anzoategui" s/on heard 10/7 at 1004 s/on w/anthem lead in mx, OM "May buenos dias, el nombre, Radio Anzoategui..." and into mx. Several IDs in next 5 minutes. (Seaver)
- 1211 -VENEZUELA Coro, "La Nueva Radio Coro" heard 10/14 at 1004 s/on w/anthem, lead in mx, ID and into talk/mx program. (Seaver)
- 1220 -COLOMBIA Barranquilla, "Radio Vision", ex "Radio 15". Plays almost all US rock, so don't confuse w/WGAR, etc. 15 kw and AN. (Schatz)
- 1260 -MEXICO XER Inares, NL, s/on 1155 11/8, followed by "Las Mananitas" and then lost to XEMF s/on at 1200. Only about 20% readable, and rough w/KYA and another US s/on which began SSB at 1158. (Gleason)
- 1320 -MEXICO XERJ Mazatlan, Sin. 11/10 1300 s/on, first time heard this season, ID as "R-3" rather than R. Mazatlan heard last year. May be a change, or simply that they use both. Excellent signal, on top of frequency. (Gleason)
- 1350 -VENEZUELA Radio Falcon, Cumarebo, heard IDing at 0013 on 11/3; this is a move from 1420. (Objio)
- 1377 -MEXICO XEQC "La Reina del Mar" Puerto Penasco, Son. 11/7 0100-0250 s/off. SS rock till 0215, then nx, more mx 0230-s/off. Very distorted audio, not able to beat carrier, covered 1376-1378. IDs by call and name, also mentions of 500 watts. (Gleason) (Reynolds)
- 1475 -MALAYSIA-SABAH Kota Kinabalu very strong w/pop orch mx and male vocalist in Tagalog language; also male ancr. Best ever heard here at 1225 MM 11/11. Good solid copy, but verified last season. 11/11 was good for Asians.
- 1530 -PUERTO RICO WUPR, Utuado, ID at 0059 on 11/3 (WCKY Cincinnati quite strong, like a local stn as heard some 20 years ago when the dial was not so crowded, u/WUPR looped w/nx at 0100). (Objio)
- 1570 -COLOMBIA HJOC Emisora Punta Betin, Santa Marta, heard for the first time on 11/3 at 0039 IDing and pop mx. (Objio) (Wilkinson)
- SOUTH KOREA HIDA Cheju City was S8-9 at 1126 on 11/11 w/religious program.
- 1580 -THAILAND Voice of Free Asia, Bangkok finally heard through domestics KOMA/XEDM 1110 on 11/11 w/woman talking in Thai. Man also spoke occasionally. Not enough details for a report, but I'll pursue this one some more. (Reynolds) * Logged from 1153-1210 on 11/11. Mexican s/on at 1210 covered him completely. (Wilkinson)
- 1590 -PUERTO RICO WJRF R. Guayama, IDing at 0051 on 11/3 w/pop mx. (Objio)
- 1600 -PUERTO RICO WLUZ R. Luz, Santurce w/nx at 2335 on 11/3. (Objio)
- 1570 -UNID IA Who is Radio Juventud here? Noted on 11/16 w/ID at 2301 and again a couple of minutes later w/"Radio Juventud presenta..." Poor sig and QRM fm what seemed to be a second IA. CFOR on top by 2315. Help! (ED)
- MEXICO XERH is now "Radio Fiesta" ex-Tricolor and plays rock. (Foxworth)

06

- And now, a few varies from Dave Gleason
- 690 -XETRA Tijuana, BC v/l from Griselda Jimenez at Apartado 100 in Tijuana after f/up. Specific and gives power as 50 kw.
- 790 -XERPC Chihuahua, Chih. specific v/l from Ernesto R. Chapa, Gerente after 3 f/ups. New address is Julian Carrillo 705. Apartado Postal 9.
- 860 -XENU Monterrey, NL v/l from Raguél Cantu O, Departamento de Mercadotecnia, Apartado 628, Monterrey. Specific v/l for dates of both receptions.
- 1000-XEFV Ciudad Juarez, Chih. Specific and precise v/l from Armando Villezcas A, Gerente, Radio Centro de Juarez at Pasaje Continental No. 2. Took 4 f/ups.
- 1110-XEWR see XEFV-1000.
- XERPM & XERED Inspecific v/l from Jose Gutierrez Vivo for these two calls. Apartado Postal 1324. Written on "RPM" letterhead, but signed as Gerente, XERED, Mexico, DF.
- 1170-XERT Reynosa, Tamps. v/l from Antonio Karam, Gerente General at Apartado Postal 52 in Reynosa. Rather indefinite, but back in a week. With over 60 XEs still out, I will trade a poor one for a nonexistent one any day!
- 1420-XEF see XEFV-1000
- 1480-XETKR see XENU-860
- 1560-XEJPV see XEFV-1000

editor.. Ernest R. Cooper
 438 E. 21st St.
 Carrier Route 52
 Brooklyn, N. Y. 11226

musings of the members

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

BEGINNING WITH THE ISSUE FOR WHICH THE MUSINGS DEADLINE IS THURSDAY, DECEMBER 24, 1974, THE ADDRESS FOR YOUR MUSINGS REPORTS WILL BE:

ERNEST R. COOPER
 7-A WASHINGTON AVENUE
 PROVINCETOWN, MASSACHUSETTS - 02657

UNTIL THEN - AS ABOVE!

KARL JETER - 2816 Frontier Trail N.E. - Atlanta, Georgia - 30341
 Greetings! DX continues to be somewhat limited although I do manage to find some time evenings to listen a little. I was a little dismayed that DX N\$WS #2 never made it here; also noticed #1 & #3 have arrived First Class, though I paid for Air Mail. The school load is still rough, & next quarter I won't try to take on so much! CX since last Muse seem worse due to this late & extended Indian Summer we're having. MM 11/4, I decided to DX but had to quit because the static was too bad! I hope I can find time this week to put up an LW. 10/25- WLBK-1410 Ky. w/HS FB 9:54-10pm o/u WPXC; KKJO-1550 Mo. unnn, 10:12-10:14pm. 10/26 AM, WIRE-1430 Ind. w/"Sound of America" SID @ 4:49am. Shortly after, WNRJ-1430 Newark in w/R&B, ID @ 4:51, but too much IRE. PM, WVOJ-1320 Fla. w/MoR & N tip" promo 6:27pm; WAGF-1320 Ala. popped in 6:28-6:32 o/WVOJ w/ads & time change reminder; several newbies also: WGFY-1280 Fla. w/clear ID @ 6:49pm & WISM-1270 Miss. w/ID @ 7am o/KADL-1270 Ark., also new, who later till 7:07pm w/c/w & FM promo, when WHYD took over. 10/28- Unusual situation on 1440 that PM: Both WHIS-1440 W. Va. between 5:45 & 6 & WAJR W. Va. also - I thought I had WHIS all along as I heard mention of a Princeton bottling company in an ad (Bluefield is near Princeton) but @ 5:54 a clear WAJR ID during NX. 11/1- WPCF-1430 Fla. w/AI & local NX, ads & paid political announcements @ 6 04-6:10pm. 11/4- WENS-1460 O. w/c/w @ 6:40-6:45pm; WCHO-1470 O. u/WBIG w/talk, 6:47-6:50pm, but lost to WBIG. Finally, VQA-1180 Fla. w/SS NX. ID, 7:23-7:35pm. That's all 'cept for varies, which are few: v/l- WBIG-1470 & WKIZ-1110' v/PP: long holdouts WEIS-990 & WAGO-1560 (both in Centr4, Ala.!) & WEBS-1110. 73s for now.

Some comments on DX Conditions and Far East Reception from Randy Seaver

The correlation between reception of Far East stations and geomagnetic activity is pretty good. I've tried to separate the DX available into 3 classes - high, transitional and low A_p, typical receptions (by transitional I mean the process of going from high to low A_p or vice versa). The list is by no means comprehensive and is based on my own subjective opinions. Some listed in one category should probably be in the next. However, to give some idea:

- Class 1 - High A - Japan on 700,750,770,830,870,890,1210; RSPSR on 647; China on 645,835,1040; North Korea on 635,655,725,735,785,877; Okinawa on 1178 and Malaysia on 1475.
- Class 2 - Transitional A - Japan on 670,840,1010,1070; RSPSR on 575,1525; China on 585,615,760,795; South Korea on 712,890,1570; Thailand on 1580.
- Class 3 - Low A - Japan on 580,650,660,730,880,1050,1090,1130,1150,1260,1440,1480; China on 620,720,860,880,940,1000,1020,1120, etc; RSPSR on 548, 584,665,810,1150,1250,1376; North Korea on 625,683,820,1005?, 1285,1135?; South Korea on 575,840,970; South Vietnam on 655; Thailand on 830.

Of course, the local QRM precludes quite a bit. As for recent condx, the period 10/1-10/9 was fair (Class 2 above), 10/10-10/30 was poor-fair (Class 1 mostly), 11/1-present has been fair (Class 2), with promises of going to Class 3. On 11/4, low frequency TPs were heard well, but high freq stns were only poor (1475 and 1525 only S3-5 carriers, little audio).

872-877 North Korean - I think that this stn is the Wonsan outlet of the NK 2nd Net which has a long history of wandering 870-890. Everytime I've heard it on 872 it's had 2nd net programming; Peterson IDed it as NK last year. It may be (probably is) the stn reported on 887 last year (altho Sanserino says he heard 877 & 887 the same AM). The history this year (approximately) is: 9/9-9/15 872; 9/23 875-6; 9/25-10/4 877; 10/7-8 872; 10/14-11/4 877. These are all from IXXD/DXNW reports since 9/9. This info also from Randy Seaver. It seems likely that Gleason's and Reynold's unknowns on 872 are this station.

- The reporters for this issue
- Bob FOXWORTH - Long Island, New York (By phone)
 - David GLEASON - Scottsdale, Arizona R390A/URR, SPR-4, Sanserino loop
 - Albert LOBEL - El Cajon, California DX150A, Sanserino loop
 - Cesar OBJIO - Santo Domingo, Dominican Republic HE30, 4' loop, 60' longwire
 - Don REYNOLDS - Glendora, California HQ-180A, Sanserino loop
 - Ron SCHATZ - Uleta, Florida Sony TFM-1600
 - Randy SEEVER - San Diego, California HQ-180A, Sanserino loop
 - Tom SUNDSTROM - Willingboro, New Jersey HQ-150 w/SB-620, SM-2; SPR-4, longwire's
 - Brian VERNON - Port Hardy, British Columbia DX150A, SM-2, Longwire's
 - Hank WILKINSON - Santa Rosa, California HQ-180, Sanserino loop
- That's it. Next column in 2 weeks. Lets have your reports by Friday, 11/29....73

BRUCE REYNOLDS - Route 2 - Warrensburg, Missouri - 64093
 CX tonight were about as weird as I've ever noted (11/8) but we had company & I didn't get a chance to explore the situation & now things are normal again. There seemed to be a dead spot in the Ky.-Tenn. area w/normal early evening regulars WSM WAVE & WIAC missing or very weak & KOA also gone. On the contrary WCBS WCCO, the Chicago clears, & WCKY were about normal. A rather odd Aurora-type effect. DX: 11/3- I camped on 1570 & added four new ones in an hour: KLLA @ 6:03pm w/NX, FF-CKIM @ 6:25; KLOV @ 6:37 w/political spot, & KTER @ 6:46 w/s/off-SSB, seemingly 15 minutes late. MM 11/4- I didn't get up till 4am because of unn DXes & poor CX on the previous night that promised no WC reception. WPLB-1380 w/UPI NX @ 6:01; I believe they were the unID w/Ralph Emory Show before 6; WKCF-930 on PSA @ 7:03am w/Ky. NX & KSDN-930 took over @ 7:09 w/ads & c/w. Driving home from Warrensburg I caught KILR-1070 o/all @ 5:54pm. This was about a mile from home, but all WDIA in subsequent tries w/loop here! KAMI-1580 6:11-6:15pm s/off. 11/5- KIKR-900 (ex-KMCO) for call change @ 6:24pm. 11/6- WMPA-1240 atop @ 12:03am w/NBC NX, then local ER. KGIN-930 @ 7:03am s/on after SSB & KDET-930 @ 7:05 w/NX. SSS brought two more on 1570: KTAT @ 6:18pm w/WX & KVLG @ 6:27 w/"Want ads of the Air." 11/7- I treee some late afternoon DX & bagged two newones on 1390- WKIC @ 4:58pm w/Coke spot & NX & WHMA @ 5:33pm w/FB interview. Unn WTCR-1420 in nicely atop weak signals @ 4:32pm! Quite a few Eastern regionals can be heard at this time of day on channels not blocked by local or semi-locals. It takes patience though, as it's almost like a graveyard. Varies: WWKY WJXN KAOL WNGR KEAN KARE KYKR (on KCAW letterhead) KRLW WQCM KGHO (thanks, Bill!) WMEE WCOV KVSQ. v/r- WDXI. v/q- KCRG. v/f- WIRL. 73.
 WE SKIP NEXT WEEK - THEN THREE MORE ISSUES WHERE MUSINGS WILL BE DONE IN BROOKLYN.

JEFF KLEPPINGER - 502 East 2nd Street - Northampton, Pennsylvania - 18067

DX has been slow lately, but will pick up quickly since I'm getting the DX-160 this coming weekend. Only three stations: WDEE Detroit on 9/23 @ 1:08am on 1500; WLIX-540 in Islip, N.Y. @ 2:13pm on 10/13, & WELU-1480 in Salem Va. @ 6:40am on 10/27. I've been anxious to get the DX-160; the Radio Shack Store was out of stock. All my locals have an SP including WAEB-790 w/SP on SM, 2-7am. I got verie from WVPO-840 from January report! About a ten-month wait. When will NRC Loop plans be ready? I would like to know of any SP on WCAU-1210 & WIP-610. Something funny happens almost every night. CKLW comes in strong next to WAEB, even sometimes w/no interference, but 1-A clear WBBM is still completely blocked out. I got a letter from Jerry Starr on CPC. I am going to write to WHOL-1600 for possible TEST. They have 500w day & 190w PSA. WWRL may prevent them from reaching too far, however, but it's worth a try. That is all for now.

*** Loop plans ARE available in Antenna Manual or Reprint # A-11. -RJE

DAVE SCHMIDT - 42 Chelwynne Road - Castle Hills - New Castle, Delaware - 19720
 DX: 11/2- WSHY-1560 ET 1:05-1:10:10am w/OC, quickie ID, some TT.
 11/3- WDLR-1550 1:30-1:34:40am w/ET/mx, PSAs, long ID. 11/5- WIOS-1480 on r/c 12:35-12:42:30, TT w/code IDs. 11/6, I was surprised to find CJKL-560 way o/ WFIL 12:57-1:01am s/off w/CJTT-1230 also being mentioned in s/off. 11/9- The very much & badly needed KWVL-1330 noted @ 1:02am, go to take report on them & they fade down, not to be heard again that AM. Same thing happened last year too. Nuts. 11/8 brought a nice legal BT on 1420, s/off @ 1:55am w/"We will return to the air at 6 o'clock", nice to have such smart people on the radio - looped NW from here - anybody else hear that pne? Great gobs of goo, I got some veries back! v/1- WSHY-1560 (five days), v/M KRGI-1430, v/q WSRF-1580, v/x WMOF-900-TEST, v/1 WIYN-1360 & WNST-1600. F/ups to KKA-1560 & WEVO-940. All the rest of my hearings have gone to Mess & Hairy, you know them, don't you? That should do it for now

TIM KERFOOT - 34 Cross Street - Weston, Ontario - M9N 2B9

There is a lot of DX to report this time. New catches: MM 10/21- WAYB-1490, 12:08am s/off; WOKE-1340, breaking the record for my most-distant graveyard, good 1:39-1:59s/off. 10/24- WLOA-1550, 6:38-6:45pm s/off. 10/28- WAIT-820, 6:18-6:30am, previously heard but never entered into my logs or totals. 10/29- KKA-1560, 6:35-6:47pm, when they dropped off abruptly; evidently a pattern change; WS00-1230 "Radio Soo", 6:56-7:02pm. 10/30- Tremendous opening into NW Quebec, my favourite DX target area. CKRN-1400 blasting in alone on frequency. 6:15-6:35pm w/CBC & several R. Nord IDs. KGWB-1590, 6:35-6:47pm well o/CBE. 11/1- CHNR-1600 "Haldimand-Norfold Radio" noted 6:54pm, formerly CFRS-1560. So much for 1600 in S. Ont., hi. 11/2- WSCP-1070, 6:17-6:36am, even w/CHK. CKRN-1400 was logging #700 here. UniDs: 10/30- Two CBC FFs on 1340, 6-6:10pm, at which time one of them continued w/CBC P.Q. NX FROM Montreal, while the other broke off w/Ont. NX from Toronto. The one w/P.Q. NX was presumably CHAD while the one w/Ont. NX could have been FLH, as it is the only Ont. FF station on 1340 other than LPRTs. 11/2- What was obviously CBH-860 in well 5:30-5:39am, but clobbered by CJBC's OC, so no log. What had to be CKOB-1400 was in w/ads for Renfrew, but did not actually hear the call so I could not count. WDOI & CKCB eventually overcame it. Veries: CFGT-1270, WIBC-1070, WKIS-740, WOKE-1340. 73.

CESAR OBJIO - Calle Enrique Henriquez 49-A - Santo Domingo, Dominican Republic

Hi friends, here I am again with my once a year Musing, what a shame. Well, here I go. Since last January I changed jobs, now I work as a secretary in a jewelry store, I am no longer working at the Secretary of Education, which is a pity, in that place I worked in an IBM Selectric typewriter and I could tupe articles for offset publication in DX NEWS - now I can't do that, in my new job I work in an old typewriter, & not much taping is done as my time is mostly occupied in other things. I have the visit of Richard Clark from Florida, who is now visiting some friends in La Vega. He spent a few days in Santo Domingo where he aligned my brother's Lafayette set & did some loggings in my RX. By the way, he discovered R. Victoria is now on 960, a move from 925. He also worked in my loop & got very good results which I can't get, for instance, he could null local 1540 & hear instead Bahamas. For Richard Shaften information in New York: HJJB-830 director in Santo Domingo says they were operating 24 hours only on Fri-Sat-Sun some time ago, but they are not doing that any longer, they are now on the air from 5am t midnight, local time, or 1000-0400 GMT. I hope to meet some DXers if they are willing to visit my country. Phone is 687-3597 & my work number is 687-5707. Willing to help you if you come. N t much DX as I am too busy now but will do

CHARLES A. WOLFF - 4911 Proctor Road - Castro Valley, California - 94546

October DX was pretty good, but I'm not trying quite so hard this month. Thirty-one new ones heard, 20 reports sent out; 12 veries back as of 11/7. V/1s from KFOX-1280 KBES-1540 KTAR-620 WSB-750 KGHO-1560 for the 10/28 TEST - 10/21 TEST not heard by me - v/qs from 3WE-1100 KKA-1020 KLUJ-570 KGW-620 WSM-650 KTRH-740. I've been watching everybody else's v/s lists, & have come up w/a list of a few I need to try again. DX Tips: KORK-920 10/20 8:10-8:43am, MoR-ish mx (Johnny Mathis live at Caesar's Palace), commercials, w/mucho KOLO QRM. I sent a report, though Nevada stations are tough to verie - out of eight heard, one verie, KPFL-1300. I'm glad to hear KQKX is acting friendly towards DXers, can we get them to make up some v/qs? DDXD 11/4 said "Studios in L.A." Should that be L.V.? (Vegas)? KWSO-1250 is educational radio. KOY-550 is MoR, also quite proud of their NX, w/ID For NX, KOY is the only radio station you need," or something like that. KINS-980 heard 10/31 8-8:18pm w/NX & many commercials - ten in 18 minutes. I think, but not sure, CBX NX, plus local NX presented by Coors. KTFU-1580 noted here 11/4 on SSS w/c/w, simulcast w/KNIX-FM 102.5, s/off @ 7:30pm (50kw D) Buck Owens BCing w/"Mx of America", invites listeners to tune to FM, etc. 11/8- KFXD-580 u/KMJ, NX @ 3:46 from station, then rr, very weak & lost @ 4:04. KIKX-1590 has SP MMs 3-4am, also has Mon. ight FB. KGA-1510 also has Mon. FB. Congrats on retiring, ERC - I hope you don't get bored in the first two weeks - or once Summer static sets in - well, maybe you'll get moved up there just in time for the MWA. KTFU was my #200 heard, so I'm starting to feel like a real DXer. 73s to all, & to all a good night/morning.

BRETT HANAVAN - 845 First Avenue - Chula Vista, California - 92011

Late October & early November has served 11 newies. I am experimenting with my IWS while I wait for a loop type antenna. DXing has been good on my back-up set - a solid state stereo w/a folded dipole dual wire *TV lead-in type). 11/4- I tuned in KIKX-580 which I had never gotten on my regular RX. Also, KOY-550 & KOMA-1520. Recent DX: WHAS-840 in on 10/21 @ midnight. WSM-650 10/22 @ 1:07am w/c/w. KGMN-1210, 10/24 @ 9:33pm w/c/w. KTFU-1580, s/off @ 9:53pm. KFJZ-1270, 10/26 @ 2:48am w/Drake. KFJZ is my furthest 5,000 watt-er. KAZM-1470, 10/27 @ 3:18am Eting, strong signal. I believe it to be one of the first broadcasts for the new station. KGW-620, 10/28 @ 3:22am w/Drake after KTAR s/off. KAFY-550, 10/27 @ 2:47pm w/Drake. Funny to receive Bakersfield in the daytime especially at 1,000w. Veries: v/q KVOO XEROX KFKX WHAS WSM KFMB KDKA KOB. V/1 from KRIZ KSON. Why don't graveyard stations print v/qs instead of having v/1s? I am more enthused about DXing every time I get a DX NEWS. I can't wait until the school vacation at Christmas time when I will have time off from studies and can DX into the wee morning hours, especially into MM. Does anyone own a SWAN 600RC RX? If so, would you please give your opinion? Totals after 11 months of DXing: Received - 175; veried - 38; Cal. 66; Ariz. 23. 73s.

GENE ALLEN - 134 Bret Harte Way - Vallejo, California - 94590

Recent visits with Clarence Freeman & Hank Wilkinson Jr. have given me renewed interest in BCB DX. Other aids to DXing have been a Sanserino Loop to add to my 4' unamplified loop plus an SM-1. I DXed this AM & heard three Siberian stations - Khabarovsk-575, Komomols-665, & Svobodnyl-584, between 5:55 and 6:15am. Other loggings are KSPD-790 Boise, Ida. heard @ 7:15pm s/off. KWAM Memphis was heard @ 7:30am s/on on 11/4. Recent veries are in from R. Malaysia, Sabah, WLEL-Canton Is., & R. Paradise, St. Kitts. A wish to all DXers for the 1974/075 season - many new loggings & veries! 73.

DOW BLOM - 517 South Wilson Street - Enid, Oklahoma - 73701

Greetings from N.W. Okla. "Red Carpet Country." I'm a new member & new DXer (about two months) & this is my first Muse. I'm 40 - married & a Jet Engine Mechanic (civilian type, at Vance AFB here in Enid). My equipment consists of an SM-2, 1938 BCB/SW/Police Band (old police frequencies) Zenith Console which I have pre-amped out to an Elco Amp. My earphones and a Realistic SCT-SC Cassette recorder are connected to the Amp. So far I have logged 81 stations - 21 states - one province, two Mexicans & my pet prize so far I-T/A "R. Netherlands" on 800 @ approximately 7:15pm w/s/off to the Caribbean in EE & s/on to S.A. in a foreign language. I will Miss more when I get better acquainted with this hobby. 73s & all them good ole numbers. (Welcome to the NRC, Don, & we also hope you'll be in these pages often - but please - DOUBLE SPACE! -ERC)
 REMEMBER TO USE A.M. & P.M., AND E.S.T. ■■■ OUR MUSINGS REPORTS. DOUBLE SPACE!

HETERODYNES

by Ken Brownless

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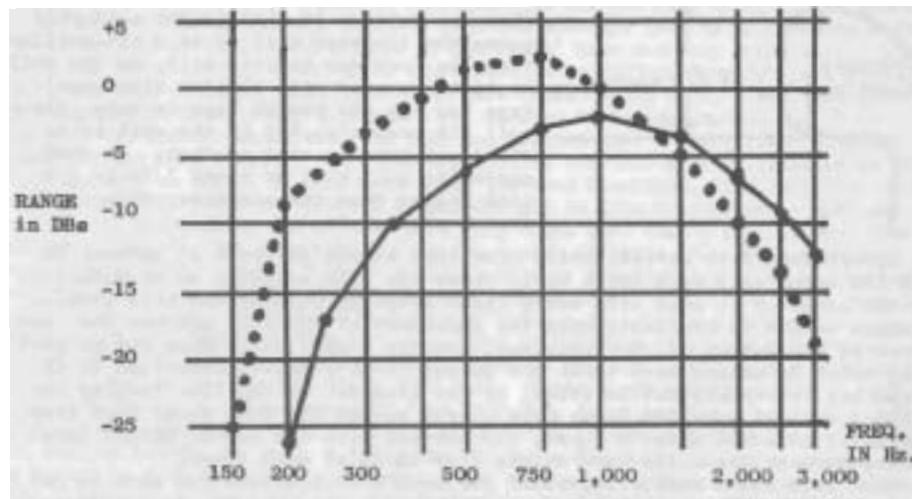
you measure a resistance similar to your speaker impedance stop winding. My experimental coils were of #34 wire, the 70 turn unit measured 3.8 ohms, and the 150 turn unit measured 8.8 ohms. These resistances will vary with the size of wire used and the number of turns, so yours may be different. To be honest a coil of 100 turns should be a close match no matter what the wire size is.

Removing the coil from the form requires slipping a small piece of tape under the coil to keep it's shape. Do this 2-3 times at different locations around the coil, then remove it from the form. At this point it's best to check the coil size against the telephone's earpiece, it should slide over with little effort. If not, you goofed somewhere—wind another one.

Connect a two conductor audio line to the coil, one wire going to each end of the coil. Now tape over the coil and connections to protect the coil and provide a snug fit on the phone. Once this is done you're ready to test the unit out. Connect the other end of the audio line to the speaker terminals, or other source, to feed the coil. Slip the coil over the earpiece and listen for audio from the receiver or other unit feeding the coil.

You'll find the audio will be rather loud in your earpiece for reasonable level at the other end. The exact amount of drive necessary will vary a bit, on mine about 2-2½ volts across the coil was plenty. Volume in a speaker at this level is quite loud, especially at 4AM, and may disturb others. My coil has a jack to fit the earphone jack on the receiver for such feedouts. Just remember to turn the volume back down before unplugging the coil or you may wake up half the members of your family.

Audio response measurements were made only on the 150 turn coil, feeding with a matched/calibrated oscillator. At the other end I measured directly off the phone line itself. Measurements were made going through two phone exchanges to assure at least 8½ miles of wire between test points. With the equipment used by the phone company this is almost as good as calling long distance to measure it. Once you go through a few miles of cable and a few amplifiers the response/quality is standardized.



This graph represents the frequency response obtained in my measurements. The dotted line is the coil as wound by the instructions given in this article. You'll note response is good between 200 and 2,000 Hz. with most of the audio between 300 and 1,000Hz. In reality this causes tapes of music and such to sound rather "bassy".

Adding a 5 Mfd. capacitor in one line feeding the coil gave the response shown by the solid line. This does cause a 2db drop in level, but the average listener will never notice a change that small. Response does improve on the high end a bit, but more important the low end is rolled off. The addition of the capacitor greatly reduces the "bassy" sound to the listener. Response may not look great on paper, but most receivers aren't much better to start with!

First of all, the systems of frequency allocation require attention and in Europe, Africa, the Near East and Russia from 511 to 1546 kHz there are 9kHz divisions and from 1546 to 1602, 8 kHz divisions. The other continents use 10 kHz divisions over the range of either 530 or 540 to 1600. A "Split Frequency" is one that does not end with a zero figure. We have many of these with the 8 or 9 kHz separation system, and HETERODYNES occur when there is a station, say on 960, and another on 962. The IF circuits of a receiver pass two frequency components which correspond to the two station carriers, and these IF components differ in frequency by 2 kHz. When the IF components reach the detector stage, the detection process produces a product mixing of the two components, and so creates the 2 kHz difference frequency. 2 kHz is 2000 cycles (musically speaking), and in the audible range of frequencies. Audible heterodynes may vary in musical frequency from bass to treble with the former being exemplified by the low pitched growl that is in the bass register of lower frequency, consequently the difference involved being less than 2 kHz for the treble register of higher frequency which is involved when a note (whistle) is heard around 2000 cycles. We have looked at the AUDIBLE range of heterodynes, and we now turn to the INAUDIBLE type of heterodyne, usually known as the Sub-Audible Heterodyne (S.A.H.)

Let us say that we have a station "spot on" the frequency of 770, and another station on 770.020 kHz. In this case the heterodyne is 20 Hz and so is inaudible, i. e., a SAH. Although these heterodynes are inaudible, the effect can be seen on the S-meter or heard in the form of the flutter fading effect. These take the form of signal strength variations which repeat themselves in a regular way every few seconds. This is your second carrier causing the SAH, and the second carrier on a frequency is normally much weaker than the dominant one. This applies to the entire MW frequency spectrum.

On frequencies above 1400, when conditions are disturbed, what appears to be a similar effect may be noted, but this is not the SAH effect because the time intervals between the pattern of fades are not constant.

The problem involved in causing SAH's is that of frequency drift, and in checking the E.B.U. Frequency Measurement List, it may be noted that stations in the Iberian Peninsula and North Africa are the worst offenders. Cairo on 710 measured 710.560, Portugal on 629 measured 628.9716, and Andorra 701 - 701.0256. However, Spain is the worst offender, and we note stations on 1394 measured as being between 1393.891 and 1394.124. On 1412 they are from 1411.893 to 1412.225, plus one of 1414.590, and on 1475 the range is from 1474.885 to 1475.145. Some of the R.N.E. measurements follow, and these are rather more accurate: 638.0046, 772.9997, 853.9918, 988.9996, 998.0140, 1079.0015, 1168.9941 and 1225.0025. These R.N.E. transmitters are much more modern than the ones where the considerable variations are shown. We note that Spain has a plan which envisages all but R.N.E. stations being on VHF, and we believe the other stations must be of ancient vintage and less efficient in "sticking to the frequency". We had an example of this in the UK when R. Humberside first came on MW, when there was a low pitched heterodyne of 200-300 cycles. Their transmitter was old also.

The audibility of heterodynes is our next point, and during daylight hours the HumberSide Het was not apparent, but it became very much so both in the early morning and evenings till close down. On 962 with Atlantis, we had a heterodyne on about 959 (Tunis) which was inaudible during daylight hours but became noticeable around dusk, and though the audio from the heterodyning station was inaudible, the heterodyne was there because the carrier wave was getting through. It was possible when using the S680X to separate the heterodyne from Atlantis, but not so on the Yacht Boy. Heterodynes may also be noted in the evenings in midwinter on European channels one or two kiloHertz away from a frequency ending in zero, and this happens when good conditions prevail over the N. A. path. A heterodyne on 1178 would be from WHAM, Rochester, N. Y. on 1180.

At the beginning we noted the frequency divisions and the importance of stations keeping strictly within these limits will be appreciated. The range is 511 to 1602, and just outside these two frequencies are channels set aside for emergency use, 500, which is one of the international distress frequencies, and 1610, which is the channel used by lightships. If 9 kHz separation were used above 1546, rather than 8 kHz, it would mean an extension of the band to 1609.

Submitted by Bob Leamy, Reynoldsburg, Ohio

<input type="checkbox"/> Grenada 500 W 555 kHz	<input type="checkbox"/> St. Vincent 500 W 705 kHz
<input type="checkbox"/> Carriacou 25 W 1045 kHz	<input type="checkbox"/> Chateaubelair 25 W 1535 kHz
<input type="checkbox"/> Unionville 500 W 695 kHz	<input type="checkbox"/> St. Lucia 500 W 1575 kHz

SHORTWAVE FREQUENCY SCHEDULE

To Eastern Caribbean		To Jamaica		Special Broadcasts		To British Isles	
MHz	GMT	MHz	GMT	MHz	GMT	MHz	GMT
<input type="checkbox"/> 0.56	1545-1800	<input type="checkbox"/> 15.105	1545-1800			<input type="checkbox"/> 31.03	1945-2130(W)
<input type="checkbox"/> 0.915	1545-2245		1.45-2245				2015-2130(S)
<input type="checkbox"/> 3.28	2155-0215	<input type="checkbox"/> 11.97	2115-0215				

(B) — March-October; (W) — November-February; Power 5 Kw

WINDWARD ISLANDS BROADCASTING SERVICE

Head Office — BROADCASTING HOUSE, GRENADA, THE WEST INDIES. Verifying reception correctly reported.

Date — 2:19:1967
 Time — 0140 G.M.T.
 Freq — 695 KHZ

The Use and Application of the Heath SB-620 Spectrum Analyzer
 by the Medium Wave DX'er

by Bob Foxworth, NRC.

A casual look at the Heathkit SB-620 Spectrum Analyzer by the Medium Wave DX'er may raise the question of just how useful this unit would be in the pursuit of Broadcast Band DX. The answer is that it can be quite useful to the serious DX'er. One of these units was acquired in 1973, in kit form, by this writer. The kits can be obtained from one of several dozen Heathkit distributors located throughout the country, and a list of these distributors is provided in the Appendix of this article. The main plant is located in Benton Harbor, Michigan and an inquiry to the Heath Company at that address (ZIP: 49022) or at any one of their Electronic Centers will get the reader a free copy of their latest catalog.

Apparently the Company has discontinued selling kits directly from their factory, as no mention is made of this practice in their current catalog. One aspect of this means that the purchaser has to pay his local sales tax on top of the purchase price. This tax, which is now a near-confiscatory EIGHT percent in New York City will add almost thirteen dollars to the kit price of \$159.95 which was just announced in their 1975 catalog. However this is just a "cost of doing business" which affects us all, so one has to roll with the punches.

An alternative approach involves buying a used, completely assembled kit from someone advertising his unit for sale in the Classifieds of one of the 4 ham radio-oriented magazines (QST and CQ have the biggest ad sections), or in the Ham Trader¹ which is circulated bi-weekly. SB-620's turn up infrequently and sporadically and went for about \$80 for a long time but in the Fall of 1974 have edged up to the \$100 to \$120 area for those few units the author has seen offered.

Buying a completed unit offers none of the familiarity of "whats-in-it-anyhow" that you gain when wiring the kit. This might cause more "headaches" when alignment is done, though that really depends on the owner's expertise generally. The really important thing to watch is that you know the IF freq your pre-owned unit was wired for. Ask the seller what kind of receiver he used the unit with. If it was one of the Heath SB-series, it was wired for an IF in the 3 mhz range; not the IF of 455 khz that we CB DXers almost universally deal with. If you do buy a used SB-620, make sure the seller can provide you with all the spare coils and parts that were provided him, so that the unit can be converted to your desired IF freq. We'll note that the SB-620 works with IFs from 455 khz up to several mhz. Consult the instructions for details. If your seller can't supply the coils for converting his unit to 455 khz, he's lost or kept them, and you ought to try to knock ten bucks or so off his price, to pay for ordering the needed parts from Heath. The instruction manual gives very good detail on wiring the unit for any one of several IF frequency ranges, so conversion isn't difficult, but just takes a few hours of attention to detail. We'll note here that the Heath Co. has one of the most liberal policies I know of concerning selling single-unit quantities of parts, to anyone (not just the purchaser of record). In fact they will sell you the manual for the kit (or any of their kits at all). Many popular manuals are sold over-the-counter at their Electronic Centers, or can be ordered from Michigan, and the same holds true for components. In 1974 the cost of manuals was \$2 per unit, although this may be increased by the time this appears in print.

You might find it better to buy the kit, build it yourself, and know that it was put together the way you want it (or, if it fails, you'll know who to blame!). In other words, pay a bit extra for peace of mind. If you have **NO** assembly experience, investigate wired units. The assembly is moderately complex and is not a job for a first-timer at kitbuilding.*Or you can have your kit wired professionally by individuals who sell their skill and time doing this, check the ads in magazines.¹

*(This is the opinion of the author, not Heath's position.)

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The shipping weight of the kit is 15 pounds. The revised (upward) price of the kit is \$159.95, as announced in the 1975 general catalog.

Notes on Kit Assembly. (Readers with completed units may skip to the next section). The author's kit went together with no difficulty to speak of. The instruction manual was accurate and detailed, as is expected with Heathkits. Some observations:

- 1 - It could be very helpful to read through the entire assembly procedure, as a familiarization step, before beginning assembly, to get an idea of what parts go where. You can get the chassis out and locate various points that parts will be connected to later in the assembly. Study the pictorials and identify each major part, but don't open envelopes of hardware until directed. Readers versed in electronic assembly won't need to do this survey work. If you don't have one, get a good 40-watt soldering iron with a narrow chisel-point tip, preferably iron-plated to retard point erosion. (Copper tips are gradually eaten away by the solder and have to be refilled often. Iron-plated tips need only be wiped with a rag). My main iron is an Ungar 3-wire (electrically grounded tip) Model # 135 with a green/black handle. It accepts 40 different tip styles and accessories. I use the PL-113 tip. It is 3/4" long x 1/8" diameter iron clad and silver plated. Another good unit is the Ungar #777 handle which accepts candelabra-type screw-in heat elements, with tip. The Ungar # 533 and # 1236 are larger tips, for heavier work. This will give the reader an idea of what's available. Incidentally the 3-wire grounded irons are recommended for work on MOSFET and IC components. A soldering gun is not recommended. Its weight will make your wrist ache, and it's too big and clumsy, and the big tip could hit adjacent wires and melt insulation, a possibility in this kit. An internal leakage path could put line voltage on the tip, too, which isn't such good news. I threw out my soldering gun years ago. And, be SURE and use ROSIN core solder. Don't use acid core (plumber's) solder as it forms crud which eats the wiring and voids the warranty. Be sure - don't fool with solder you don't know the history of.
- 2 - If you plan to substitute BNC chassis connectors for the two phono jacks on the rear apron, make the decision now. The UG-1094/U jacks take a 3/8" dia hole (9.525 mm) which is already provided. They bolt right in place. It's a real ordeal changing them after the kit is done. They are more reliable jacks.
- 3 - When wiring in the socket for the 3BP7 CRT (step is on p. 17 of the manual) note the pin keyway orientation. They don't tell you where this is shown; you have to turn to page 34 for the illustration. The socket must be installed so that pins 1 and 7 can be aligned as shown, or the trace won't be horizontal on the CRT screen. (Unlike an electromagnetic CRT, with a yoke that can be rotated, these CRTs are electrostatic and have built-in deflection plates for sweep, thus the need for orientation as shown). There should be enough slack in the leads so the socket can be ~~hung~~ mounted onto the CRT base, as described on page 34. Don't expect it to seat fully, and don't force the socket too hard onto the CRT base as the tube could implode and throw glass if broken. When installing the CRT leave the mechanical clamps loose until final checkout, as the tube likely will have to be rotated slightly to get the trace exactly parallel to the graticule baseline. Then seat the CRT screen fully forward.
- 4 - One step I would modify is found on page 28 of the manual, dealing with installation of the varicap diode on the oscillator coil (see detail 10-B). I would mount all the other parts first on 1-3, and mount the varicap diode as the last step on page 28, so as to minimize the exposure of this diode to heat from soldering. Leave the leads about 3/4 inch long (1.9 cm) and tack-solder to the terminal lugs. These diodes are heat-sensitive and can be damaged.
- 5 - When wiring the terminals of the electrolytic capacitor " (see Pictorials 3 and 4), leave enough slack so that the wires might be removed and resoldered should the capacitor eventually need to be replaced. Less than an inch is OK.
- 6 - Take your Time. Check each Step. Do a Job You'll be Proud to Show your Friends

-- Good Luck! --

The Finished Product. The completed unit is 6 and 5/8 inch tall, 10 inches wide and 10 and 1/2 inches deep. It weighs 10 pounds. (16.83 cm x 25.4 cm x 26.67 cm; 4.54 kg.) The unit uses 40 watts power and can be wired for 120 or 240 volt mains supply at 50 or 60 hz, so is usable by most of our European and overseas colleagues. A front view of the unit is provided in Fig. 1, below. Figure 2 is a line drawing of the unit, taken from the instruction book, and Figure 3 is an oblique view, likewise taken from the manual. Note that Figure 2 also illustrates the rear apron of the unit.

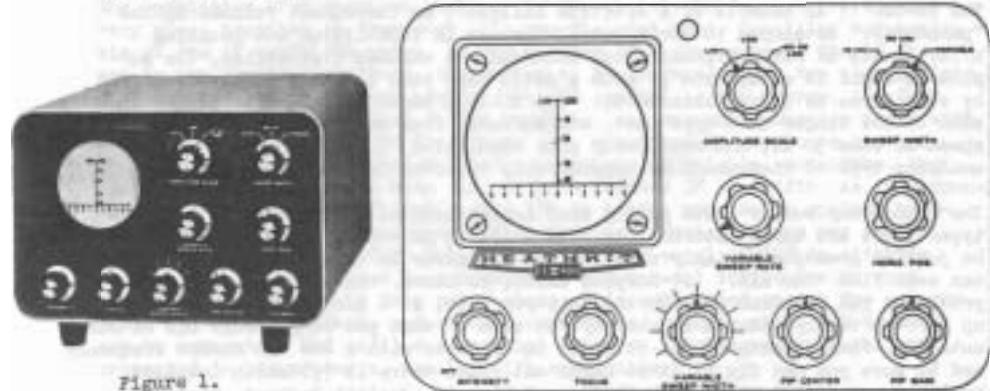


Figure 1.

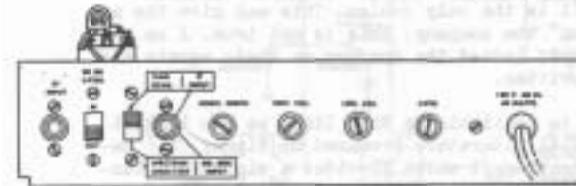
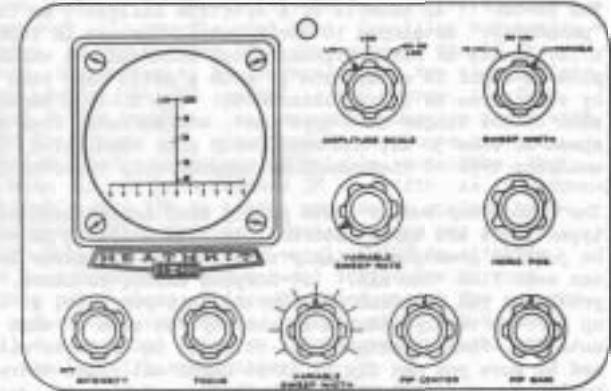


Figure 2

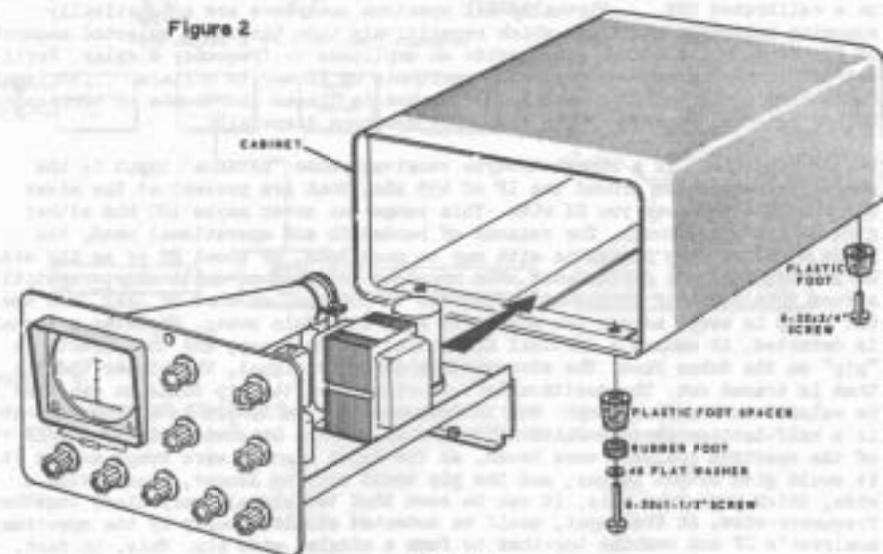


Figure 3

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Principles of Operation. The reader will probably not be too interested in the theoretical basis of operation, just as he isn't all that concerned with what makes his receiver function. We'll just touch briefly on this topic, and note here that additional material is listed at the end of the article.^{5,6}

The SB-620 is an example of a spectrum analyzer, an instrument related to the "panadaptor" developed in World War II for use in identifying and locating brief bursts of radio transmissions occurring at unknown frequencies. The surplus BC-1031A is an example of such a unit; this item is still being advertised by such firms as Barry Electronics. The BC-1031 seems to be a militarized version of the Singer SA-8 type unit, and suffered from such things as a fixed sweep speed of some 30 hz, and relatively poor resolution. The more modern spectrum analyzer type of instrument is considerably improved in these respects.

The reader may wonder about paying what nearly touches \$150 for a unit of this type. There are three alternatives: (1) Building your own. The cost would likely be just as great, especially when you buy the parts in unit quantities...IF you can even find them all. (2) Surplus units, as above. An acceptable alternative, providing you can find exactly the unit you want, at a low enough price to make up for the vastly reduced capability. Be sure of what you're getting. One of our noted So. Florida members can fill you in on units with a 400 khz center frequency and be sure you can fix it if it conks out. Then there is (3) which involves buying a commercial unit. Such firms as Tektronix, Hewlett-Packard, Singer, Nelson-Ross to name some, make excellent units but they all cost in the multi-thousand-dollar range, which isn't really necessary for our purposes. So, it would seem that, once the reader is sold on the concept of using a spectrum analyzer in his DXing, the Heath unit is the only choice. This may give the appearance that the author is "plugging" the company. This is not true. I am receiving no compensation for my remarks; indeed the company or their agents are not even aware this paper is being written.

Now that we've touched on what else is available in this line, we can look at what makes the unit operate. Commercial literature prepared by Singer Co.⁷ defines "A spectrum analyzer (as) an instrument which provides a visual, rectangular coordinate display of applied signal amplitude as a function of frequency on a calibrated CRT. ...Virtually all spectrum analyzers are automatically scanning heterodyne receivers which repetitively tune through a selected segment of the frequency spectrum and provide an amplitude vs frequency display. Vertical deflection (amplitude) may be logarithmic or linear in voltage. ...Horizontal deflection (frequency) is usually calibrated in linear increments to correspond to the selected segment of the frequency spectrum dispersion."

The SB-620, then, is a superheterodyne receiver whose "antenna" input is the range of frequencies around the IF of 455 khz, that are present at the mixer stage of the receiver you DX with. This range can cover maybe 100 khz either side of the IF although, for reasons of bandwidth and operational need, the range we'll concern ourselves with may be much less, or about 20 or so khz wide. We'll cover this in depth later. The receiver is tuned automatically, repetitively across this range of frequencies, say 400 to 500 khz, or more or less, and the CRT sweep is swept across the screen in step with this sweep. Whenever a signal is detected, it causes a vertical deflection of the sweep, and thus creates a "pip" on the tubes face. The stronger the detected signal, the higher the pip that is traced out. The position left-to-right that the pip falls on can then be related to its frequency. The IF frequency of the SB-620 is at 350 khz. It is a half-lattice crystal filter 150 hz wide. It can be seen that, if the IF of the spectrum analyzer were broad, as the input signals were swept across it, it would give output longer, and the pip would stay up longer, thus giving a wide, thick pip. From this, it can be seen that two signals very close together frequency-wise, at the input, would be detected simultaneously by the spectrum analyzer's IF and combine together to form a single, wide pip. This, in fact,

means that the shape of the pip on the CRT face is determined by the IF bandpass of the spectrum analyzer. It's helpful to remember here, that the detector of the spectrum analyzer sums the total signals present into a single voltage, which causes the pip to be higher or shorter. The theory of spectrum analyzers is admittedly somewhat arcane, and the reader is referred to other reference material for a more detailed analysis of what is involved here.^{5,6} Recent reviews in the amateur radio literature are especially recommended.^{5,6} The resolution of a spectrum analyzer is the ability to resolve two signals very close together in frequency into two distinct pips. Recalling our analysis of the IF bandwidth above, it may be seen that the narrower the IF channel in the spectrum analyzer, the easier it is to resolve the two signals into distinct pips. On the other hand, if the IF channel is too narrow, the fast sweeping signal doesn't stay in the bandpass long enough to develop a pip with enough height to show up on the screen. So, a compromise has to be reached. While the professional multi-kilobuck units have adjustable bandwidths, the Heath unit, for economy's sake, has to have a fixed IF bandwidth. As it happens, the two crystals in the filter, being 150 hz apart, provide an optimum bandwidth. At the medium sweep speed, which provides about 2 sweeps per second, covering a total range of 20 khz, signals of near equal amplitude slightly less than 1 khz apart, can be separated on the screen. That's pretty good, especially for a unit in this price class. It's quite good enough for our purposes and needs. In fact, under other conditions, signals about 300 hz apart can be separated, and we'll discuss that later on. Some sample graphs are presented in the appendix, dealing with resolution.⁸

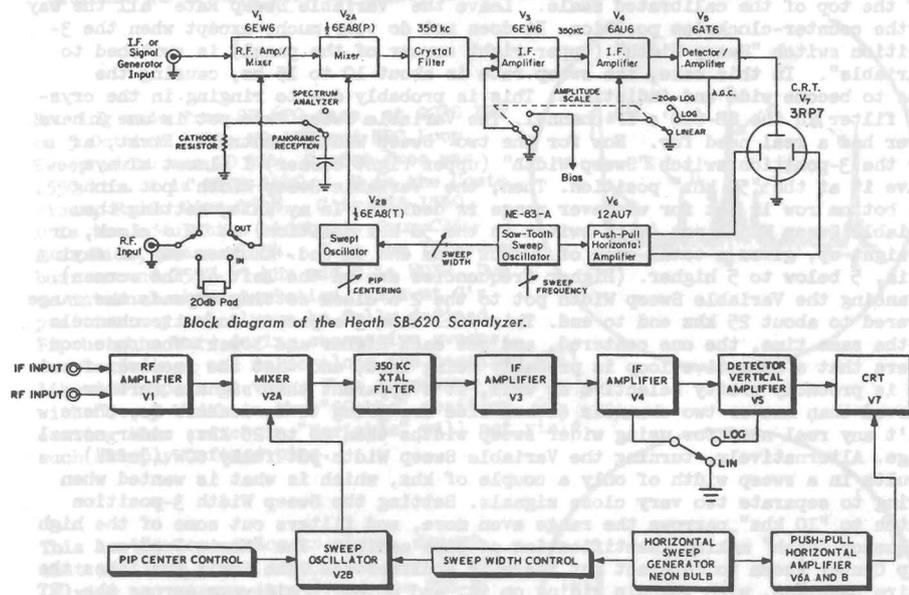


Figure 4.
BLOCK DIAGRAM
 Block diagram of SB-620. Two versions of the same circuit. Top, from the review in CQ magazine⁶ and bottom, from the Heath assembly manual.

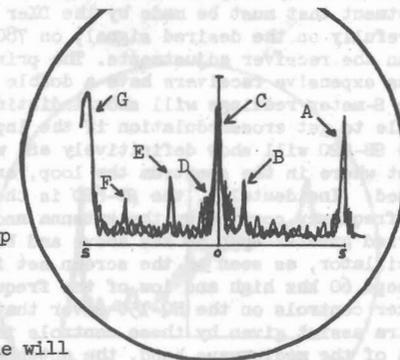
At this point we'll assume the reader has his unit procured, and it is operating and aligned, as described in the instruction manual. The reader has read the operating section of the manual and has an understanding of what each control is intended for. For those readers not possessing their own unit, we'll refer instead to Figure 2, above, and look at each control. For serious use on the broadcast band, we'll first of all understand that the instrument is being used in the "ham scan" mode and that the signal is being coupled into the IF jack. (see "rear apron controls", page 55 of the assembly manual). Dealing now with the front panel: Intensity and Focus are "set and forget" type of controls. The intensity setting depends on the ambient room lighting. The optimum place to set intensity is just bright enough so that the trace forms a continuous line and any ripple on the trace no longer is evident. (AC hum can cause what is called "intensity modulation" of the trace, with alternating light and dark patterns, with the Intensity control set low. This isn't harmful; just annoying). In the Appendix, we'll discuss dealing with the ambient room lighting problem. The Pip Gain control sets the input sensitivity, along with the Lin-Log switch, which is labeled Amplitude Scale. In order to show the maximum dynamic range, with strong and weak signals appearing on-screen at the same time, the Amplitude Scale should be set to "Log" or if you have more input signal from the receiver available, set it to "-20 db Log" and set the Pip Gain to around the 9 o'clock setting. You should set it to the point where background noise just shows up as "grass" on the baseline, where no signal pips are. Note that operating the Amplitude Scale switch in Linear (labeled "Lin") will cause strong signals to fly off the top of the calibrated scale. Leave the "Variable Sweep Rate" all the way at the counter-clockwise position. It does not do very much, except when the 3-position switch "Sweep Width" (upper right corner of the panel) is switched to "Variable". In this case, the sweep rate is about 10 to 15 hz, causing the pips to become wide and indistinct. This is probably due to ringing in the crystal filter in the SB-620's IF channel. The Variable Sweep Rate pot is one I have never had a real need for. Now for the two "Sweep Width" controls. First, as for the 3-position switch "Sweep Width" (upper right corner) I almost always leave it at the "50 khz" position. Then, the "Variable Sweep Width" pot along the bottom row is set for whatever range is desired. In my unit, setting the Variable Sweep Width pot (with switch in the 50 khz position) at 12 o'clock, or straight up, gives a total span of 10 khz from end to end. Another way of saying it is, 5 below to 5 higher. (Higher frequencies are on the left of the screen). Advancing the Variable Sweep Width pot to the 2 o'clock setting expands the range covered to about 25 khz end to end. This will show 3 adjacent domestic channels at the same time, the one centered, and one each higher and lower. When one considers that a selective loop is probably being used, and that the receiver front end is probably pretty selective as well, it's apparent that signals further removed than one or two channels either side are going to be weaker. So, there isn't any real need for using wider sweep widths than 20 to 25 khz, under normal usage. Alternatively, turning the Variable Sweep Width pot fully CCW ("off") results in a sweep width of only a couple of khz, which is what is wanted when trying to separate two very close signals. Setting the Sweep Width 3-position switch to "10 khz" narrows the range even more, and filters out some of the high frequency "hash" making identification of pips easier. The "Horiz Pos" and "Pip Center" seem to interact but there is a difference. The Horiz Pos takes the entire baseline, with the pip riding on it, and moves it sideways across the CRT face. The Pip Center, on the other hand, moves the pip sideways on a fixed, non-moving baseline. Normally the two controls have to be readjusted slightly as the unit warms up, and drifts. Set the Horiz Pos so the ends of the baseline are at the two "5" marks on the graticule. (The Width, on the rear apron may have to be adjusted to allow this). Then, with the sweep line centered, tune in the desired signal, and center it in the receiver tuning, then set the "Pip Center" to place the pip at the "0" mark at the center of the graticule. As the reader uses the machine, he will find that the Sweep Width settings are the most active controls. The Amplitude Scale and Pip Center are used less frequently.

We'll Now Deal with the benefits of having a SB-620 in your Broadcast Band Shack. The uses of the Scanalyzer that are especially useful to the MW DXer will be discussed in this order.

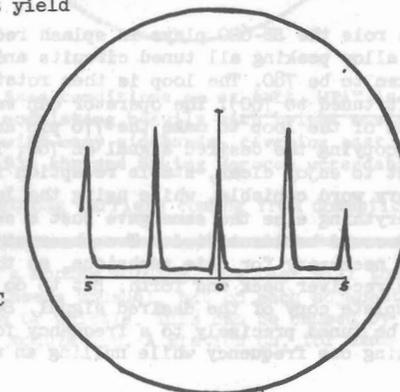
- a) Adjacent Channel splash reduction, in conjunction with a loop.
- b) A rough indication of the amount/extent of locally originated splash.
- c) Rapid visual checking of origin of strong carriers, coming from domestic testing stations.
- d) Rough frequency measurements (to approx. 500 hz, depending on several factors). Identification of unknown carriers as being high or low in frequency, with the aid of a crystal standard.
- e) Visual aid in setting a Q-multiplier to the correct setting, especially in the difficult to use "Null" mode, so as to affect the desired carrier and not a nearby one.
- f) Visual assurance of tuning loops and front-end peaking adjustments to desired frequency. Discuss the "noise hump".
- g) With multi-receiver setups, a DXer can listen on one receiver, and visually check the presence or absence of a second carrier by looking at screen, with volume down.
- h) Analysis of unknown radiations that may be encountered.

Beginning with the second part of this paper, next month in DX News, we will take up these topics, and discuss connection to the receiver in another way than that described in the Heath manual. Below are some sample trace presentations. We'll have more of these, in the analysis, next month.

Dr. ing made from SB-620 face, at 2230 EST on 5 October 1973; HQ-150 and NRC Loop. Sweep width was 20 khz. Center freq was 1550 khz. A is WPTR-1540. B is the Costa Rican, Radio Cima-1548. C is CBE-1550. D is the modulation sidebands from CBE. E is Nice, France-1554. F is the ITV sweep buzz around 1557.67 kHz and G is WQXR. Due to internal characteristics, pips at G's position may not always be fully defined. Pip heights vary during successive sweeps, due to fading, and noise along the baseline will likewise appear to vary. This trace was made with "Sweep Width in the "50 khz" position. Operating this switch in "Variable" will not yield such sharply defined pips.



This is the same trace as above, except that the loop power supply was turned off (giving no antenna input) and the FMS-3 marker calibrator turned on, giving check points every 5 khz. Note the strong pips at 1545 and 1555, and the weaker pips at 1540, 1550 and 1560. These pips are all accurately determined by the crystal frequency. Refer to the FMS-3 review (c/o NRC Reprint Service) for more information.



(a). Adjacent channel splash reduction, in conjunction with a loop.

The procedure used here to enable clear reception of a signal that is adjacent to a loud, splashing local takes advantage of the fact that the SB-620 screen acts much as a dual S-meter might. That is, it simultaneously shows the strength of the desired signal and the undesired local at the same time. This contrasts to the S-meter on the receiver panel which shows merely the sum amplitude of all signals that manage to squeeze through the IF strip and reach the detector. In the case of someone wanting to monitor ZBVI on 780 with WABC interfering on 770, the procedure is for the DXer to tune his receiver to 780 and set the sweep width on the SB-620 to cover 20 khz, or a bit more. This will show a large pip for 770 on the right hand end of the baseline scale. The antenna peaking adjustment (and the mixer trim adjust⁹, if you've installed one on your set) are both adjusted carefully to peak up the pip at 780. It may help to peak just slightly on the high side, that is, at 782 or so, to maximize slightly more the desired signal with respect to the interference. Watching the noise roll back and forth along the screen as the controls are adjusted will indicate accurately where the RF and mixer tuned circuits are resonating. (See: Section f.) This will be a more accurate procedure than just peaking these controls for a maximum S-meter reading.

This step is important because it is possible to peak the tuned circuits on the interference on 770 instead of 780. This would give a higher S-meter reading but would severely compromise the signal/interference ratio. The other electrical adjustment that must be made by the DXer using a loop is to peak the loop tuning very carefully on the desired signal, on 780. This is even more important and critical than the receiver adjustments. The principle is exactly the same. DXers using the less expensive receivers have a double risk in that with the wider IF bandwidth, the S-meter readings will show indistinct, shallow peaks and secondly, it is possible to get crossmodulation if the input circuits are peaked on the wrong signal. The SB-620 will show definitively and with no possibility of misinterpretation just where in the spectrum the loop, ant trim (and optionally, the mixer⁹) are tuned. Incidentally, the SB-620 is the only feasible way of demonstrating the range of frequency covered by the antenna and mixer trim adjustments. Resonance can be varied greater than 50 khz above and below the frequency being tuned in by the local oscillator, as seen on the screen set for maximum sweep width. The author's unit sweeps 60 khz high and low of the frequency being received, and the antenna and mixer controls on the HQ-150 cover that entire range: a good demonstration of the extra assist given by these controls in peaking up the set. Especially at the top end of the mediumwave band, the antenna, mixer and oscillator stage of a superhet often are nowhere near being together (tracking) as the set is tuned. This reduces sensitivity and can cause birdies and crossmod problems¹⁸.

The role the SB-620 plays in splash reduction from the interfering local, then, is to allow peaking all tuned circuits and the receiver on the desired signal, here taken to be 780. The loop is then rotated to minimize the interference on 770 (but left tuned to 780). The operator can watch the SB-620 screen and adjust the position of the loop to make the 770 pip as small as possible, while all the time he is copying the desired signal on 780. The author has used just this technique in fact to enjoy clear, stable reception from ZBVI in the British Virgin Islands, with every word copiable, while using the loop. Switching to a longwire and leaving everything else the same gave just a sea of splash through which nothing at all on 780 could be identified. Two observations ought to be made here: The SB-620 is not necessary for this technique, as the same thing can be accomplished by tuning the receiver back and forth. But to do that takes a lot longer, and loses having complete copy of the desired signal. Secondly, recall that the loop does not have to be tuned precisely to a frequency for it to null that frequency effectively. Tuning one frequency while nulling an adjacent one is perfectly feasible.

The SB-620 vividly demonstrates the effectiveness of a good loop in split freq reception, and shows how important the accurate tuning of the loop is. The author often notes the Costa Rican, Titania on 825 khz between 820 and 830, with a pip height of about half that of the adjacent channels as seen using a longwire antenna. The same reception with a standard NRC Altaz loop with FET preamp provides a pip from Titania of EQUAL height to the adjacent 820 and 830 pips. This allows much clearer reception, better fidelity (as the Xtal filter often is not needed) with a better signal/noise ratio, and a marked reduction of the 5 khz het whistle.

(b). Indication of the amount and extent of locally originated splash.

This is related to the previous topic. The DXer can critically analyze the sideband spectrum of local broadcasters. With many stations switching to the use of 125% positive peak modulation, when their transmitters can't adequately handle it^{19,20} and with increasing use of microwave studio-transmitter links that will pass studio-distorted audio with harmonics up to 30 khz, one can expect that sideband splash will be an ever increasing problem. There's not much the DXer can do about it, except looping it out, or complaining to the station, but the extent of it can be kept track of. You might get farther, if you DO complain to your local station, if you can tell them you have a spectrum analyzer!

Here are two examples of SB-620 screen presentations, while monitoring the station at Agadir, Morocco on 935 while local station WPAT-930 was not modulating (Fig. a) and playing brassy music with many high-frequency components (Fig. b). This will give an idea of what one may expect in the way of sideband splash interference.

Fig. 6.

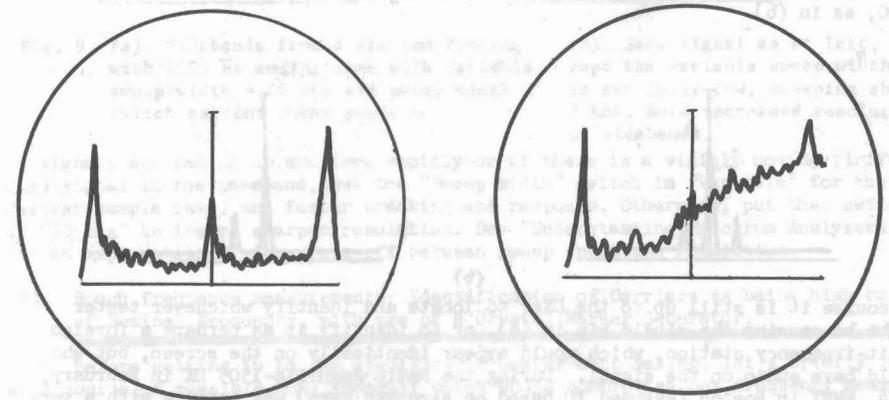


Fig. 6. Sweep width about 10 khz.
Center freq. 935 khz. Pip
is Morocco. Pip at right is
WPAT-930 with no modulation.

Same conditions as at left. WPAT is
modulating heavily with bright music
with many sidebands, covering past
935 khz and making Morocco unreadable.

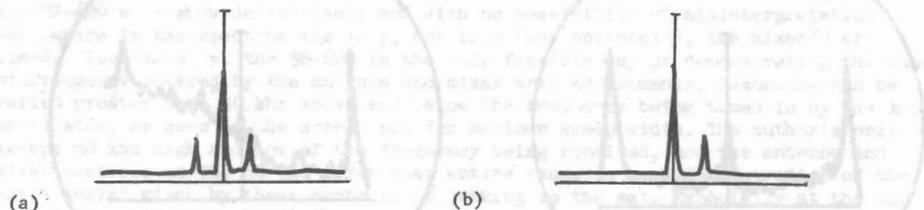
(c). Rapid visual checking of the origin of strong carriers coming from domestic testing stations.

Many times late at night, especially on a Monday morning, the DXer will tune past a given frequency and hear nothing that seems unusual, but on each adjacent frequency there will appear to be a heterodyne or whistle. This can be caused by a station testing with a high pitched tone for modulation. A station on, for exam-

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 ple, 1470 khz testing with a 10 khz audio test tone will put an RF sideband, which acts and looks just like a carrier itself, on 1460 and 1480 khz. If the testing station changes the modulating tone from 10 to 5 khz, the sidebands will move up to 1465 and down to 1475. If the DX'er happens along at that point in time and tunes to 1475 hoping to hear a European, he will find what appears to be a clean carrier of moderate strength on 1475 khz. Assuming that the audio osc. being used by the testing domestic is free of hum and jitter the sideband radiated on 1475 will be equally clean and will have no "audio" on it, that is, no hum and jitter will be heard. Many stations use high quality audio oscillators with very clean characteristics, so this will be the rule. Modern transmitters easily pass audio past 20 khz (at so many db down) so one can occasionally expect to find sidebands extending 2 or more channels away from the tester's channel frequency. Many station's antennas will radiate fairly effectively at ± 20 khz, too.¹⁷ If there is a bit of distortion in the tester's modulator stage creating harmonics of the audio input frequency (e.g. a 10 khz test tone creating sidebands at 10, 20 and 30 khz above and below the carrier freq) then the problem is compounded. In such a case, if the audio oscillator at the 1470 khz tester were set not at 10.0 khz, but at say 9.8 khz (a not unreasonable assumption) it could then put sidebands at the following frequencies: 1479.8 1489.6 1499.4 and 1460.2 1450.4 and 1440.6 khz. This can really cause confusion if the DXer tunes to frequencies like 1440 or 1500. He would hear fairly weak 600 hz audio hets or tones on those frequencies which at first glance would sound like a tester on those channels using a 600 hz tone test (a not unreasonable assumption).

The SB-620 display will immediately indicate what the situation is. A tester on 1500 using 600 hz tone will generate its own sideband pairs at 1499.4 and 1500.6 which would show on the screen as Fig. 7a. The interference from our hypothetical 1470 tester on the other hand will have a single pip at 1499.4 and nothing at 1500, as in (b).

Fig. 7.

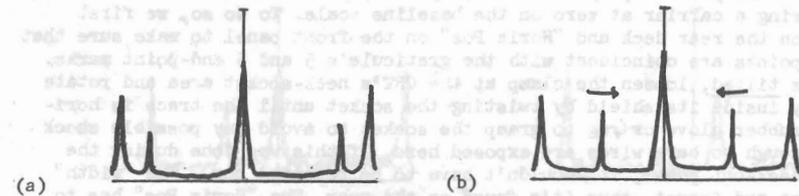


Of course it is still up to the DXer to locate and identify whichever tester might be causing the single pip in (a), or to identify it as perhaps a foreign split-frequency station, which would appear identially on the screen, but who would have audio on the signal. During the Radio Anguilla-1505 DX in February, 1974, WMEX in Boston (assumed ID based on strength here) was testing with a very strong 5 khz audio and put a whole "comb" of signals all over that part of the dial. Tuning across that part of the band on a receiver was quite confusing as it was difficult to tell exactly where one was tuned, with all the signals present. The display on the SB-620, set for a 30 khz scan width gave a clear picture of what the situation was. Use of a 10 khz calibrator identified the pips frequencies, and they could be seen popping up and down in unison as WMEX put their Tone Test on and off.

A common testing frequency, audio-wise, is 7500 hz. This is one of the modulating frequencies specified by the FCC for use in making Proof of Performance runs. Our tester on 1470, using this tone frequency would thus put sidebands on 1462.5 and 1477.5 and the SB-620 set for a 20 khz sweep width would show the pattern in Fig. 8a. As the tester moves their audio frequency from 7500 hz down to

5000 hz, the DX'er can actually watch the sidebands move closer together on the screen, as in Fig. 8b.

Fig. 8.



Identifying unknown signals as sideband pairs instead of discrete carriers, and thereby eliminating them from consideration as possible DX targets is a powerful analytical tool for the busy DXer who is under time constraints on a Monday morning when time is limited.

Fig. 9.



Fig. 9. (a) Sidebands from a station testing with 1000 hz audio, seen with variable sweep width = 20 khz and sweep width switch set for 50khz position. (b). Same signal as at left, except the variable sweep width pot is set fully CCW, sweeping about 7 khz. Note increased resolution of sidebands.

If signals are fading up and down rapidly or if there is a visibly moving (drifting) signal in the passband, put the "Sweep width" switch in "Variable" for the fastest sample rate, and faster tracking and response. Otherwise, put that switch at "50 khz" to insure sharper resolution. See "Understanding Spectrum Analyzers"¹¹ for an explanation of the trade-off between sweep speed and resolution.

(d). Rough frequency measurements; Identification of Carriers as being high or low of Nominal Frequency, with use of a Crystal Marker Generator.

Before getting in to the specifics of measurement making, let's briefly look at a source of possible non-linearity which would compromise our frequency measurement ability. The baseline trace of the SB-620 is supposed to be linear. That is, equal frequency changes should occupy equal increments on the baseline/CRT face. This depends on and assumes that the varicap diode inside the SB-620 has a linear volt/capacitance curve. In practice, it should, but it may (a slight chance) have a slight "knee" in the curve which has the practical effect of making the scale slightly more cramped on one side of center than on the other. This effect, even if it does exist, should be so slight as to be nearly undetectable. It should however be looked for during initial checkout of the instrument. On all units the author has seen, when sweeping over a 20 khz width, linearity was better than 0.5 khz differential pip displacement at each end of the scale, referred to the center pip. The thickness of the pip prevents a more exact measurement of sweep nonlinearity. Needless to say this is quite good and is well within our needs. The author has never heard of a case where this problem was evident but as we say it ought to be checked for initially, just for insurance against a bad VVC diode.

Because of the lack of need for excessively wide sweep widths in BCB work, no attempt was made to check wide-sweep linearity exactly. "Eyeball-checks" indicate good linearity over the maximum available sweep width should be obtained.

Let's establish that your display is linear, by using BC carriers as a check mark. Start by centering a carrier at zero on the baseline scale. To do so, we first check "Width" on the rear deck and "Horiz Pos" on the front panel to make sure that the trace end-points are coincident with the graticule's 5 and 5 end-point marks. If the trace is tilted, loosen the clamp at the CRT's neck-socket area and rotate the tube gently inside its shield by twisting the socket until the trace is horizontal. Use a rubber glove or rag to grasp the socket to avoid any possible shock hazard, even though no bare wires are exposed here. If this was done during the assembly and check-out phase, it shouldn't have to be repeated now. The "width" control is a set-and-forget, thus it's found on the rear. The "Horiz Pos" has to be readjusted slightly from time to time due to drift in the circuitry. Set these two controls to center the trace directly behind the baseline scale.

Now, tune in a steady, stable signal accurately and peak it in the receiver pass-band. You can turn the Xtal filter on to help do this. Now, turn "Pip Center" (on bottom row, front panel) so that the pip of the station you've tuned in coincides with the vertical mark at "0" on the CRT baseline scale. Turn "Variable Sweep Width" (bottom row, front panel) to about 2 o'clock and set it exactly so that the adjacent channel pips appear at the ends of the trace and are fully defined. We suggest placing them at the 4 and 4 marks, so that they can be fully defined. Now, the left hand (+ 10 khz) pip should be the same distance from the center pip as the right hand (- 10 khz) pip. At 20 khz sweep width, the 10 khz intervals will be about 1 inch (2½ cm.) apart. Reducing the sweep width to 10 khz doubles that distance. Note: This polarity convention applies to a receiver where the LO freq. is higher than the input freq. Make sure that these are real carriers and not images or ITV buzz signals by tuning to them and checking them aurally. Check several different channel pairs to insure repeatability of the measurement. If you do find that your sweep is not linear, get a new varicap diode, and leave the leads about ¾ inch long (about 2 cm.) when installing, so the device doesn't get overheated while being soldered in place. See: Notes on Kit Assembly #5. The device number is 1N954 and Heath p/n is 56-49.

That should take care of preliminary checks (along with those in the manual) to ensure that the machine is set up correctly. Now that we have three equidistant pips on the CRT face, the distance between them can be accurately related to frequency. A received signal exactly halfway between two domestic channels (ending in ---5) will be exactly halfway between the respective even-channel pips. A signal not exactly halfway between, such as Belize-834, Radio Panamericana, Honduras-944 or, if the DXing gods are benevolent that night, Turkey on 1016 khz, will appear off-set from halfway between the adjacent domestic channel pips by just what the final digit in the frequency suggests. With the "variable sweep width" pot set for a 20 khz sweep (3 pips on the screen) at about 2 o'clock on the scale, it will be easy, with a bit of practice, to determine the carrier frequency in question to about 1 khz. This is the most useful sweep width to use when hunting splits as it shows both sides of whatever channel the receiver is tuned to, allowing some "room to maneuver". The DX'er can double the apparent space on the screen by narrowing the sweep width to 10 khz (set control for about 12 o'clock on the panel scale) and tune equidistant between the domestic channels; you'll then have one domestic channel pip on each side of the screen. Your split-frequency target station then will appear at the center of the screen. A frequency measurement then can be made to within 0.5 khz, more or less, by carefully positioning the adjacent even-freq domestic pips at equal numerical points on the baseline scale, say, at 4 and 4. A split-freq station will cause the pip to appear exactly at zero if it's on a freq ending in ---5. The pip's deviation from an exact split may be measured by marking off the distance along the baseline. Fig. 10a illustrates a split frequency signal such as Belize-834 as seen on 20 khz. sweep width, and Fig. 10b illustrates the same circumstances, but with the "variable sweep width" control = 10.

Fig. 10.

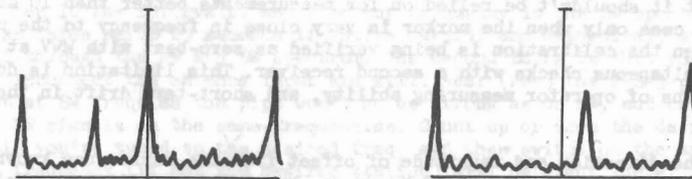
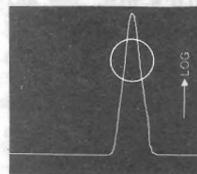


Fig. 10. (a) Approximate frequency measurement by pip location on the baseline. Note 834 is not exactly between 830 and 840. Var. sweep width = 20 khz.

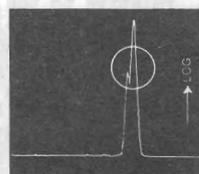
(b). Variable sweep width is now set for 10 khz. Carriers at 830 and 840 are at ends of the trace, 835 is at the middle. 834's location is very easily determined on the trace, and frequency verified to within a few hundred hertz

In making measurements, work from the midpoints of the pips. In the sweep widths we've been discussing, the pips can appear from ½ to as much as 1 khz wide at the base, due to the finite time the signal is in the SB-620's passband. Heavy modulation will make them seem even wider at the bases, so measure from the tips.

While the limit of optical resolution remains at about 500 hz or so, it is possible to do quite a bit better than this by using a crystal frequency marker standard¹⁰. This generates precisely known frequencies at intervals selected by the user. The DX'er sets the marker generator for 5 khz intervals and the output attenuator on the marker is adjusted so that the marker pip is about the same height (strength) as the unknown signal. Using the 10 khz sweep width allows the adjacent broadcast carriers to serve as reference points on the screen. If the unidentified split-freq station is on a freq ending in ---5, the signal pip will coincide with the marker's pip. Some good examples of stations that were within 50 hz of being exactly on a ---5 are Radio Paradise-1265, Radio St. Pierre-1375, some of the low-band Costa Ricans and ZIZ on St. Kitts which seems to be at 555.03 or so. In such a case, while receiving the station, you can pulse the marker on and off and have just the one pip, rising and falling in step. If the signals are more than about 50 hz apart, you'll begin hearing a low pitched audio het with the marker on. If the signals are more than about 100 hz apart, we are getting to the point where the SB-620 can separate them on the screen. This is what "resolution" is.



Not enough resolution - appears to be only one frequency.



Enough resolution to separate two frequencies.

The DX'er can set the "variable sweep width" fully CCW ("off") so that it is sweeping the smallest range, and the pips are separated the most. This ought to give a pair of pips quite close together on the screen. Then, either rocking the marker attenuator up and down, or leaving it on and disconnecting the antenna or switching it off¹⁴ so the UNID disappears will identify which pip belongs to you and which to the DX. Thus we can tell

which is high, and which low. The pitch, in hz, of the audio het created will tell you the separation in hz. (Be sure you've checked the calibration of the marker standard. A dual output on the marker, with secondary output going to a second rcvr tuned to WWV, for instantaneous calibration checks as you DX, is very helpful). In cases where the separation is less than 15 or 20 hz, you'll get, not an audible het, but a SUB-audible heterodyne²¹. This may or may not be audible to you, depending on the low-frequency audio response of your receiver. If you can hear a SAH,

it will sound like a flutter or a "wish-wish" effect. You can see the S-meter wobble back and forth, or use an oscillographic display of the AVC voltage for easier detection of SAH's. You'll have to tweak the trimmer on the crystal marker standard to see which direction of turn is needed to cause exact zero-beat, to tell which frequency is higher than the other. The accuracy of the crystal marker standard is such that it shouldn't be relied on for measurements better than 10 Hz or so, and in that case only when the marker is very close in frequency to the unID signal, and only when the calibration is being verified as zero-beat with WWV at that moment by simultaneous checks with a second receiver. This limitation is due primarily to limitations of operator measuring ability, and short-term drift in the marker's crystal.

With both the direction and magnitude of offset from the marker now known, the DX'er can find the exact frequency, to 10 Hz or so, by algebraic addition. We'll note here, again, to avoid possible confusion: When we refer to "10 kHz sweep width" or "20 kHz sweep width", this refers only to the "variable sweep width" pot at the center of the bottom row on the front panel which is marked in clock-like graduations. It is set at half-on (12 o'clock) for 10 kHz sweep, and at about 2/3 on (2 o'clock) for 20 kHz sweep. Full-on sweeps about 110 kHz width, and full-off (CCW) sweeps about 7 kHz width, in the author's unit. This holds true when the "sweep width" switch in the upper right hand corner of the panel remains set on the "50 kHz" position, as discussed on page 6 of this article ("at this point..."). This switch position is generally used all the time, to give best resolution with adequate sweep rate (sampling rate).¹¹

This procedure is excellent on medium-wave but its usefulness doesn't stop there! Frequency measurement on short-wave, always very difficult (unless one owns a R-390A, a \$600-dollar Drake or equivalent) is helped greatly by the combination of the FMS-3 calibrator we've just discussed, along with the SB-620. The author enjoys working the lower-frequency SW bands on occasion (120, 90, 75 and 60 meter). Recently a loud Spanish signal was heard a bit higher than 4.8 mhz at 0430Z with segued music: just by listening, there was no idea who this might be. The long-wire antenna was switched off¹⁴ so the receiver went "silent" (just system noise). The calibrator was set to 100 kHz intervals and 4.800 mhz located exactly. The dial on the HQ-150 being accurate to within 20 kHz here, this was done unambiguously. Then the FMS-3 was set to 10 kHz intervals, forming a "comb" of evenly-spaced check points. This can be done because the calibrator is fed to the receiver input independently of the antenna signal input line¹⁰. This allows the check points from the calibrator to be heard even with the antenna completely switched off. We count up past three of the 10-kHz markers to tune back to the area where the unID was heard. We tune in accurately the 4.83 mhz marker and switch on the antenna and find the unID is slightly above it. Now, we switch the calibrator to 5-kHz intervals and watch where the new pips appear on the screen, relative to the unID's pip. The unID is bracketed by the 4.83 and 4.835 marks, and baseline interpolation puts the unID at 4.832 mhz. We check the standard references, WRVH, FBIS and find San José, C. R. listed here. After then listening for 20 minutes more, we're rewarded to hear, "a través de Radio Capital" confirming our ID. Note that even with a band-spread interpolation chart, counting logging scale divisions between 4.8 and 4.9 mhz, we still wouldn't have been really sure we didn't have 4830 or 4835 kHz, which common sense would try to suggest it was; those scales just can't be read that closely.

The SB-620 didn't lie. We flipped on and off the 10 kHz markers and watched the pips jump up and down. Going to 5-kHz intervals, caused the new pip to appear on the other side of the unID. We knew it was a "split" ..we knew exactly where we were tuned. That's just about the most reassuring feeling a DX'er can have. If, likewise the DX'er wants to locate, say 2182 kHz, the calling frequency for shipping, go to 2200 and count down two 10-kHz intervals to 2180. You'll see the 2190 and 2180 pips on the left and right. If a nearby TV set is operating, you'll see a pip at 2187.06 which provides a convenient checkpoint. Tune your receiver between 2180 and 2187 and you'll be right on channel. When a transmission on 2182 does occur, you'll see it appear on the SB-620.

Note the key to success here. The DX'er needs a calibrator that divides down to 25, 10 and 5 kHz intervals. The FMS-3 is nice as it does this, and can also divide only to 400 kHz intervals. You can locate, say 11.2, 11.6, 12, 12.4 mhz, and then go to 100, then 10 kHz intervals, and find any frequency in the SW spectrum. The whole process takes maybe 20 seconds if you're careful and methodical, and it is accurate all through the MW and SW spectrum. The second thing is that you have to be able to disconnect the antenna input and still hear (see) the FMS-3 pips. This is important at SW freqs as the pips won't be as strong as on MW, and can be masked by received SW signals on the same frequencies. Count up or down the desired number of pips until you're tuned to the desired freq, and then switch on the antenna, and the desired frequency (if not the desired station) will be right there.

If the crystal in the calibrator is trimmed correctly, the marker harmonics are of usable accuracy all through the SW band. They may be 100 or 150 Hz off at 30 mhz, or so but that will get you in the ballpark. You'll be mixing the input down to 455 kHz in all cases so the SB-620 will give the same resolution, calibration accuracy and signal separation on the baseline at all points in the MW and SW spectrum. Use a crystal-controlled converter for the 2-meter ham band and you'll have the same accuracy up there, too.

We should recall that in single conversion receivers such as the HQ-150, circuit-wise, the highest 1 or 2 bands (the 10-18 and 18-31 mhz band on the HQ-150) place the local oscillator frequency below the input frequency: this will make the pips drift past in the opposite direction as the set is tuned. On high SW, the pips move to the left as the freq. is increased, and on BCB the pips move to the right as the frequency is increased.

(e). Use of the Q-multiplier, especially in the "null" mode.

Let's start here by reminding ourselves that the SB-620 is a wideband device by definition and goes into a wideband part of the receiver circuit (the mixer). The crystal filter, and any mechanical filters should and in fact must come after the SB-620 signal takeoff point to allow the instrument to do its job. Thus, your crystal filter (which is part of the first IF stage) will not affect the SB-620 presentation. This turns out not to be a hardship. The story is different with the Q-multiplier. The Hammarlund HQ-150 (one of the best ECB DX receivers available, in the author's opinion -IF you can locate one!) fortunately has both a xtal filter AND a Q-multiplier built-in, making the set extremely versatile, selectivity-wise. Remember that in selective IF's it is not enough to just have a really narrow IF passband. This often gives you a carrier but chops off much of the audio sidebands. It's sometimes much better to notch out a single QRM-ing carrier and retain wide audio bandwidth for better intelligibility (up to 4 or 5 kHz audio) than it is to whack everything off with mechanical filters, and get 2 kHz audio. It's only when trying for the really weak ones, in noise, that the MF's start showing superiority, and then they do that very well.

Q-multipliers as a rule are tricky to use, especially in the Null mode, as it is quite difficult to tell exactly where in the passband the null notch is situated at any given time. This is true for home-made Q-M's, the Hammarlund Q-M or a used Heath QF-1 or HD-11 etc. that the DX'er may have added to his set. The fact that makes it possible to use the SB-620 with your Q-M is because the Q-M is tied to the plate of the mixer stage, at the same point the SB-620 is connected to. So, the Q-M affects what happens in the mixer tube, and the SB-620 sees the result.

Note that, in some "economy" receivers the "Q-multiplier" is simply a regenerative feedback device, for peaking purposes only, in one of the IF stages. This will not work, as we're describing it here. Your set MUST have a TRUE Q-M (look for a separate tube like a 12AX7 in tube units) and it must have both a "peak" and a "null" function. Also, it must operate in the plate of the mixer stage. If your set does not have this, shop around the radio amateur gear supply houses, or check the clas-

sified. You can get a Heath QF-1, wired, for 5 to 7 dollars. It's a worthwhile investment. (Copies of the QF-1 manual are available from the author; send a SASE please.) Other types are a bit more. Make sure the Q-M you buy is for the same frequency as your IF/SB-620.

Most radio amateurs and DXers who use or have used the Q-M use it on peak mode. This is fine for CW reception, and for detecting weak AM carriers in noisy backgrounds, as it makes the IF frequency output of the mixer only a few hundred hz wide. For MW DX that isn't so hot because we have to demodulate AM 'phone signals and for that we need a few thousand hz bandwidth. The crystal filter is more effective for AM reception as a selectivity-sharpening device as the "phasing" or "xtal phase" control can be adjusted to effectively vary the IF bandwidth to suit conditions.^{22,23} The Q-M on the other hand, when operated in "peak" mode, doesn't do that much until it goes into oscillation. Then, all of a sudden it becomes very narrow. (It presents a low impedance to the mixer at all frequencies except the one it is tuned to, and this "shorts out" all those other frequencies so they are not heard).

The active foreign DX'er soon finds many cases where it's more expedient to get RID of one signal than to KEEP another one, assuming there are several signals in the receiver's passband. This can be done quite effectively with the "null" function, assuming it is tuned correctly. The SB-620 makes this difficult and tricky job quite easy. Consider Fig. 11:



Fig. 11. (a) (theoretical curves). Theoretical flat mixer band-pass with Q-Mult off, and the shape of the Q-Mult Peak function curve is shown, illustrating no gain except at the peak frequency. Drawn to fit coordinates of the SB-620 screen.

(b). Q-Mult is now switched to the "Null" function. Mixer stage has full gain everywhere except at the null frequency. Note narrowness of the notch, which must be tuned very carefully. This is a "theoretical curve" and you'll not see this actual curve on the SB-620 screen. This is the mixer gain curve, on SB-620 coörd's.

Figure 11a is the output of the mixer stage. It is a representation of response vs. frequency with the Q-M "cfff", and with the Q-M on "peak". If you could feed high-level broadband "white noise" into the receiver at constant level you would see curves (ideally) like the 2 curves in Fig. 11a. The illustration in Fig. 11b is more abstract. Fig. 11b will not be seen on the SB-620 screen. (It would if you could duplicate the hypothetical "white-noise" test we just spoke of). Fig. 11b is the response curve of the mixer stage with the Q-M in "null" position. It is drawn to the same X-Y coordinates as Fig. 11a and illustrates how the Q-M notch affects the otherwise flat response of the mixer stage; ignoring for argument's sake the gradual rolloff in response on each side caused by the mixer tuned circuit.

Let's look now at what the Q-M does to a signal. We'll refer to Figure 12, next.

Fig. 12.

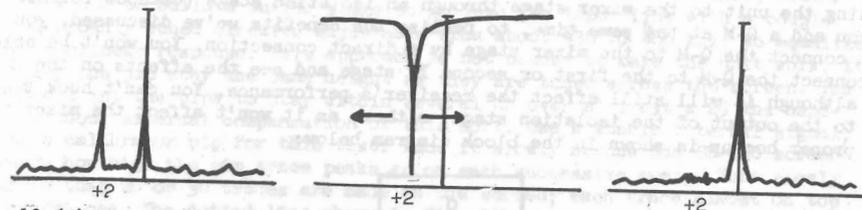


Fig. 12. (a) Two carriers of roughly equal amplitude, several khz apart. The Q-Mult is turned OFF.

(b). Position of the Q-M notch in the mixer band-pass; tunable back and forth. (See remarks in Figure 11-B).

(c). Unwanted carrier is completely nulled by the Q-Mult (some sideband energy remains) leaving the other carrier effectively in the clear.

This is a more satisfactory method than using a narrow-band filter to drop the QRM'ing signal at the +2 mark on the baseline off the edge of the passband, as this leaves the full audio bandwidth detection capabilities of the IF available, yielding higher-fidelity audio output. This improves readability greatly if the desired signal is strong enough to work with. Very weak signals still require sharp filtering techniques, though.

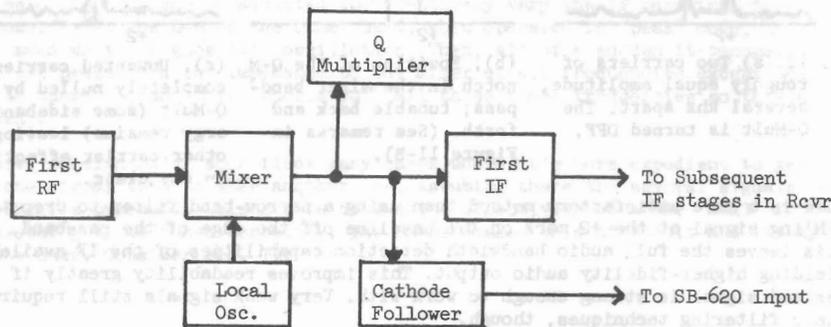
To use this method, put the Q-M in "peak" mode and set the "peak adj" pot so the mixer just breaks into oscillation. You'll see the peak shown in Fig. 11a. The receiver's audio will go quiet and almost nothing will be heard. Move the "freq" or "tuning" control back and forth and you'll see the pip move back and forth on the screen. If your interfering signal that you want to get rid of is at +2 on the scale (3 or 4 khz high), tune the Q-M so the regeneration pip coincides with it. You should hear a BFO-type effect - a whistling tone that drops down to zero-beat. Tune for zero-beat, and match up the pips one on top of the other. Now, switch from "peak" to "null". Your null will be exactly where the peak was. A very slight refinement of the "tune" may be needed, and proper setting of the "null" pot on the Q-M should give complete elimination of the offending signal, and removal of the pip it caused. The clear reception of ZBVI on 780 we referred to in Part (a) was made possible by looping out 770 and notching out a s-9 signal from Radio Rebelde, Cuba, which was then on 783 khz, by using the Q-M null at the same time.

Using Q-multipliers effectively is an art in itself. The "null" adjust pot on the Q-M supplied as part of the HQ-150 is almost as critical in its setting as the "tune" is. Both controls have to be rocked back and forth to effectively null a station. The "null" pot should NOT be set full-on. On the author's set, this pot is set around 2/3-rds on, but the exact setting is very critical, in a range of rotation that is about as wide as the white pointer mark's width engraved on the red knob. This is only about 4 or 5° of arc setting range. Any setting outside this critical range will give partial nulls only, as the "tune" is moved back and forth. If your Q-M is properly set you should be able to totally eliminate loud heterodyne interference within 1 khz of a desired signal. Experimentation is the key to success here. The blessing of the SB-620 is that it shows exactly where the null is located, keeping the operator from making the common error of nulling the desired signal by mistake.

Caution: Your receiver should be a single-conversion with a 455-khz IF, or a simple double conversion (3 mhz first IF with fixed HFO and then a 455 khz IF). A caution on this aspect of technique applies to HQ-180 owners: You'll be able to hook the SB-620 to your HQ-180 and it will show you what's in the passband. However, the selectivity circuits, and importantly, the Tee-notch Slot Filter

operate at 60 khz and their effect won't be seen on the screen. So, if you have a HQ-180 or other multiple-conversion set, you'll have to add your own extra Q-M.

There is another caution to add here. Later in the article we'll describe connecting the unit to the mixer stage through an isolation stage (cathode follower). If you add a Q-M at the same time, to realize the benefits we've discussed, you must connect the Q-M to the mixer stage by a direct connection. You won't be able to connect the Q-M to the first or second IF stage and see the effects on the SB-620 although it will still affect the receiver's performance. You can't hook the Q-M to the output of the isolation stage, either, as it won't affect the mixer then. The proper hookup is shown in the block diagram below:



(f). Visual assurance of tuning loops to the correct frequency. "Noise hump".

We touched on this concept in Part (a) when we discussed tuning loops to frequencies close to a strong local. We use the SB-620 as a "frequency-selective S-meter" to ensure tuning the tuned circuits in the antenna-receiver chain to the correct frequency. This procedure markedly reduces the possibility of tuning the receiver to one frequency (by tuning the local oscillator with the tuning dial) and peaking the RF circuits to an adjacent strong signal, causing possible desensitization and/or crossmodulation problems. This is one place where we can operate the "sweep rate" switch in the upper right hand corner in "variable" so it will show the effect of tuning changes much faster, due to the faster sampling rate. This permits the operator to see the effect of changes more clearly.

A good visual indication of the precise RF tuning of the various tuned circuits in the antenna-receiver chain is provided by what can informally be referred to as the "noise hump". All this is, is an indication of background (atmospheric and man-made) noise displayed on the baseline of the SB-620 sweep trace.

If the input of the SB-620 has flat response, and if the receiver and loop response are each flat (or substitute a longwire for the loop), then the received noise power would be essentially constant across the bandwidth displayed on the SB-620. This is so at least over the 20 or 30 khz bandwidth of interest to us. This would give a pattern of noise distributed evenly across the baseline, with the gain of the receiver and SB-620 set just high enough to cause the noise to appear. This is the same thing that radar operators refer to as "grass" on the baseline. (See Fig. 13a). (Of course, in radar one sees tube-generated noise, not atmospheric noise, but the principle and effect is the same). The author's system displays plenty of noise and has ample sensitivity for this, with "amplitude scale" at "-20 db log" which is less sensitive.

In practice, the response is not flat in the system. Apparently, SB-620's exhibit slightly more sensitivity on one side of the center frequency than the other. This is not a great problem at a 20 khz sweep width, but it can be noticeable if

the instrument is to be used for surveillance applications, operated at maximum sweep width. Minor non-linearity in sensitivity can seemingly be fudged out by slight misalignment of the 350 khz trap coil inside the SB-620. Another, better approach would be to build a buffer stage to go into the input line with a couple of low-Q broadly tuned circuits adjustable from about 430 to 480 khz, to equalize out any nonlinear response. This approach is not needed to make the unit work, it just makes the pip stay the same height as they are tuned across the screen. The user should get the pips to stay within several db over at least a 25 khz bandwidth, without external compensation of this sort. Use a stable internal signal, such as a calibrator pip for this test. Tune it slowly across the SB-620 screen and watch how high the pip trace peaks go on each successive sweep. Tune slowly enough so that 20 or 30 traces are made on the screen; each trace almost on top of the last one. The dotted line shown in Fig. 13b shows how your system responds to a constant-level input at all points of the sweep range, or bandwidth. The reader is referred to "Understanding Spectrum Analyzers" 11.

Fig. 13.

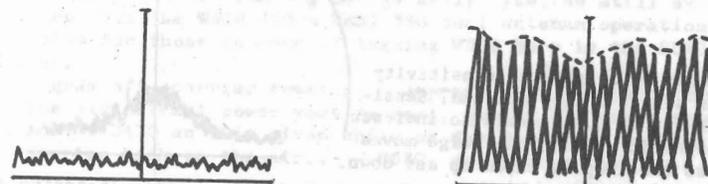


Fig. 13 (a) background noise being received just strong enough to indicate on the baseline.

(b). Tracing the response curve of the receiver-SB-620 system at 430-470 khz by sweeping a stable signal across the freq. range and noting the pip heights.

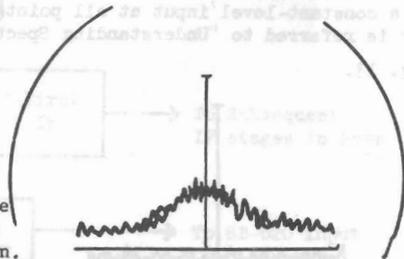
When making this test, recall that when a loud (strong) signal is tuned into the receiver's passband, the AVC will bring down the mixer and RF gain somewhat, causing all signals the SB-620 sees to dip in height. If the AVC is left on, the pattern in Fig. 13b will dip at the center. We suggest the AVC be turned off for this test.

Now that we've touched on what to look for regarding the linearity of response of your system, we'll deal with the noise hump. All this is, is the cumulative effect of the relatively narrow RF selectivity of a loop antenna, coupled with the peaking effect of the antenna trimmer (RF stage peaking) and the mixer trimmer⁹ (mixer stage peaking, if installed in your receiver). (A future article will describe installing such a trimmer in the HQ-150 receiver). The RF selectivity of your antenna/receiver system becomes only several khz wide at 3 to 6 db down, and all this sensitivity becomes concentrated in a relatively narrow frequency range. This makes the received atmospheric noise appear to form a "hump" at the resonant frequency. A good high-Q (sharply tuning) NRC-type 4-foot loop with a high-impedance FET preamp will contribute most of this effect. As the loops tuning capacitor is swept back and forth across the received frequency, the "noise hump" will move back and forth across the SB-620 screen. This effect is most pronounced at the 540 khz end of the MW band where the loop's sharpness is much more evident. Use a fast sweep rate for this test ("sweep width" switch in "variable"; but leave "variable sweep rate control CCW). A good loop will appear only a couple of khz wide at the bottom of the BCB. In fact a tester using 1 khz tone test on a low frequency can be tuned so sharply that either sideband can be peaked up several db over the other by just tuning the loop slowly and carefully. This can help evade heavy sideband splash coming from one side - just tune slightly away from that side. And, remember that a strong signal will cause the AVC to knock down the system gain, so that the noise hump may be seen best only when tuned between domestic channels. If the DX'er is tuned to a strong signal, then just tune the loop to peak that signal. The noise hump serves as a good indication that the antenna is peaked correctly in the absence

of a strong signal that would deflect the S-meter. The noise may not be enough to make a meaningful indication on the S-meter by itself. The rise in noise on the CRT serves to show the antenna is peaked where the operator wants it to be.

The combination of high antenna selectivity and visual indication of tuning has even brought in an "impossible" catch once. The HQ-150 in use by the author tunes down to about 534 khz, and one night when the Algerian on 533 was coming in very well, a pip could be seen off to one side of the screen. Even though they could not ordinarily be heard, being just off the end of the HQ-150's tuning range, the loop was tuned very carefully to peak up their signal, and it was only then that a small amount of spill-over carried over to about 535 where they could marginally be heard. They weren't audible otherwise, and without the SB-620 showing a signal from them, we would never have known they were in that particular night.

Fig. 14 illustrates the "noise hump".



"Noise hump" caused by heightened sensitivity caused by use of a high-Q loop antenna. Sensitivity of the SB-620 is just enough to indicate background atmospheric noise. This bulge moves back and forth as the loop is tuned up and down.

(g). Checking the activity of a signal by "silent monitoring" while listening to another signal with a second receiver.

The title, here, tells it all. As we said, the SB-620 acts as a frequency-selective S-meter, and it can make strength measurements simultaneously on two different adjacent signals. It can also serve as a signal presence-absence indicator on a receiver with the volume turned down, while monitoring another receiver. The big help the SB-620 gives here is that it will allow monitoring of a much weaker signal than would be shown reliably on the S-meter alone, with interference.

(h). Analyzing unknown radiations or strange signals.

Occasionally some wierd signal may be heard on the SW bands or even on the MW ECB. Facsimile and teletype, or multiple-channel data transmission are heard often and these make distinctive patterns of their own. It must be recalled that the spectrum analyzer is a sampling process and that a carrier at the center frequency is sampled once, quite briefly every sweep. It is only because the carrier in question is at the same frequency and same strength every successive sweep that it traces out a pip directly atop the previous, decaying pip on the CRT, and so the natural integrating ability of the human eye and mind, and the long afterglow of the P7 phosphor in the CRT make the pip appear to be fixed, steady and stable. If the signal is drifting you'll see a series of adjacent pips traced out in a stop-start effect, not in a smooth, steady glide. This is akin to those photos of a man swinging a golf club, illuminated by a flashing strobe light in a time exposure. You'll see lots of images of sharp golf clubs, not a smooth unbroken sweep image of one club. This implies that if a signal being analyzed is changing rapidly, you'll not see a complete indication of the changes being made, but ordinarily that should not be a hardship. The sampling rate can be stepped up by narrowing the sweep width so that the SB-620 spends a greater percentage of time on the signal of interest, and by increasing the sweep rate ("sweep width" switch on "variable"). The tradeoff is a marked reduction in resolution. Experimenting with various combinations of these controls is recommended when encountering any unusual signals.

CONTINUED IN NEXT ISSUE.....

DOMESTIC X DIGEST



editor.. Wes Boyd
960 W. Liberty
Girard, Ohio 44420
216-545-4543
Starr 216 534 1394

Hi group,

How's your bird? Good grëff, Tis Thanksgiving time..snow (for most of us anyhow), cold, and DX!!!! Looks like DX has improved, as I sit and look at what shows signs of a 6 page DDXD. So might as well get to it... changes

1230 C??? NWT CRTIC granted 40 40 UI Ft. Franklin-{// CHAK Inuvik,NWT 860)
620 WETE TN Has a "fake" s/on w/ SSB 6 days at 0500--MM SP 0008-0500
980 WITY IL 24 hrs--MM SP: 0100-???? (LB) (SF)
1500 KROQ CA Has been silent about 3 months, ran outta money to pay the staff. (BP) No wonder I can't hear them !!!--HWB
1540 KBES WA Now is NSP w/ background type mx (BP)
1590 KUUV WA Now is off daily at 0300, ex NSP (BP)

And finally a note from Big George Kelly (yes, he still exists!!*) Still no date on when the WHDH 850 & WEEI 590 dual antenna operation is to take place. Also for those in need of logging WHDH here is the SUNDAY MORN. SP operation.
0330 Program off--carrier remains. approx. 0410 switch to day pattern... (this has significant power west he sez), mostly OC, maybe some TT. Every Sunday AM at 0430 an IDis given while on day DA. 0445 carrier off the air. 0605 carrier back on the air.. 0630 programing back on..

r c's

NOT HEARDS:::

4th. MM:: WKAK 730--WMM 1260--WARM 590 (PrM) MANCHESTER, KENTUCKY 40962
NEW (???)

1st. Fri: WPAZ 1370 w/ TT 0100-0115 & IDs every 5 min. (DS)

4th. MM:: KAMA 1060 w/ TT 0200-???? (ex. 3rd. MM) (LB)

HEARD:::(Oct)

1st. MM:: KDBM 1490 w/ CW IDs--KQIK 1230 w/ CW IDs--KOZI 1230 w/ CW IDs---
KCUZ 1490--KGRL 940--KVSL 1450 (all--BP)

Last MM: WJDY 1470 (PrM)

HEARD:: (Nov)

1st. MM:: WCNC 1240 w/ TT & IDs every 2 min.--(DS) **DENVER**

1st. Tue: WIOS 1480 w/ TT & code IDs (DS)

1st. Fri: WHBG 1360 w/ TT---WVBZ 1360 w/ TT--(DS)

1st. Sat: WSHN 1550 w/ TT (DS)

1st. Sun: ECII 1380 w/ TT (DS)

sunset & evening

- *950 ● KAH1 CA 10/18 S/off 2130 after "Pledge of Allegiance", gave PSA power as 470 wt (BP)
- KXJK AR 11/10 S/off 1800 after religious message (DT)
- 960 CKWS ON 10/26 Noted 2353 w/ mx,rr, jingles,etc. (Shaft)
- 970 ● KVVM AZ 10/22 S/off o/ all, no SSB-ments. 15 acre xmtr. site (DT)time?
- KNOK TX 10/22 Soul mx 1944, ads for Dallas record shop (KDF)
- WJNK SC 11/1 Obviously day operation 1723 w/ bank ads, should have switched to nite DA 1715, typical first of month goof (FM) Who's she??
- 1070 WSCP NY 11/9 Call noted in mess 1620 u/ WKOK & WNCT pest (JWB)
- 1090 KAAT CO 11/4 hrd. 1832 w/ ad for resturant, seems that this has nx for the last 15 min. daily. (FM)
- 1170 WLEE WI 11/1 O/u WVVA 1649 w/ local PSA & C&W mx (FM)

KOA

DENVER

HWB-HENRY?
YEECH!

950 = ED5

1190 WPUP MS 11/10 S/off mentioned 5,000 watts, killing WOWO. Haven't seen power listed in any updaters (DT) No reason, they applied for, and got 5,000 watts...HNB

1210 WILY IL 11/7 Ai nx, Ads & farm nx 1858-1905 (KJ)
 KGYN OK 11/6 FINALLY, 1818 w/ farm ads, C&W mx, gone 1821 due to WCAU. Better 11/8 w/ Ads, farm ads, ID, etc. 1818-1821 (KJ)

1220 KVSA AR 11/6 Hrd. 1756 with detailed wx, & 1800 s/off, weak (KJ)

1250 WETU AL 11/8 S/off 1745-no SSB (KJ)

1260 WVOK FL 11/8 O/ local WTJH w/ C&W & ads 1717-1722 (KJ)

1280 WDNT TN 11/8 W/ wx & short s/off w/ SSB 1727-u/ WGBF (KJ)

WIBB GA 11/8 elusive one surfaced 1730 w/ s/off-no SSB (KJ)

WDSU LA 11/6 ID as "Sports-radio 1280, the recognized leader in sports broadcasting", then BKB promo-2238 (KJ)

1290 WTOG GA 11/6 Ridiculous "Turkey Phone" contest, must answer phone saying GOBBLE-GOBBLE to win, then MOR--2245+2247 (KJ) Are you kidding????--HNB

WATO TN 11/8 Mutual sx, RR, FB promo-1734 to 1742 (KJ)

1310 WSEW WK 11/3 Surfaced at s/off 1715, said 0600 return (PK)

UNID ?? 11/3 Ai nx 1700-1705, then Lou Boda sx, 1710 political ad for Sarah Lee Neil, mx (PK)

Wbfd PA 11/3 ID 1649, WVIP off, CFQM w/ C&W under. (PK)

1320 WKIN TN 11/5 On top 1705 w/ RR & drive in restaurant ad (GG)

1350 KMAN KS 11/4 Amazed to find this pipsqueak 1801-1803 w/ possible sx, & local HS mentions, promos for KMKF 101.7 (FM)

WYLS AL 11/7 Strong 1758 w/ spot in middle of s/off anct. (KDF)

1360 KKOL TX 11/7 End of nx 1900, ID & RR-first mistook for pest WSAI (DT)

KHAK IA 10/31 Local nx etc. to 1830 s/off-seems 15 min. block (FM)

1380 WYNK LA 11/5 Noted at 1800 w/ start of state nx (GG)

KLIZ MN 11/6 Atop freq. 1742 w/ local wx report (GG)

KMS ON 11/7 Alone 1843 w/ mx, ID, & wx (DT)

OPPS--Outta order!!!

1370 KWRT MO 11/4 Atop WSPD w/ 1759 s/off, dunno if used SSB-is C&W (FM)

KGNO KS 11/4 O/ WSPD 1824-27 w/ political ads & MOR/C&W style. Called & they said was them, never did hear any ID. (FM)

1390 KNCK KS 11/4 Another that amazed me, w/ state temps. 1811, then back w/ s/off 4 min. later (FM)

1410 WHTG NJ 10/26 Noted 1715 w/ MOR, temp., ID (Shaft) another biggie!--HNB

1420 WACT AL 11/9 Poor 1746 w/ S/off, FM mention, no SSB (KDF)

1440 KDNT TX 10/28 C&W, Haunted House ad, ID 2048, wx 2055 Ai nx, dropped way u/ after 2057 (LB)

KMLB LA 10/28 Up for end NBC nx 2158, wx, ID, mx, & back into mess (LB)

If they verie, tell me--hrd. back in '70 & still have tape--no verie--HNB

KOKY AR 11/9 O/ WHHY w/ R&B 1757, s/off 1800 (KJ)

WHIS WV 11/9 O/ WHHY w/ FB reports, mx, many soft drink ads, 1815-1851 Anncr. sounded quite young. (KJ) You expect IMUS in Bluefield??--HNB

WAAB MA 11/1 O/ mess 2040 w/ local FB & local auto dealer ad (GFj)

1460 WOKO NY 11/1 C&W 2035, promo "Memphis Sounds", PSA for NY state police then more C&W (GFj) Yep..thats it--HNB

1480 KMDR IN 11/10 Like a local 1813 w/ RR, ID, & more RR (DT)

1500 WTOP DC 11/6 Sneaked in o/ WLAC slop 1730 w/ sx, nx, & ads (KJ)

1520 KCHF SD 11/7 Poor 1801 w/ s/off-u/ WKBW & KMPL (KDF)

1540 KGBC TX 11/7 Ad for local power co., & end of ABC Bandstand show, ID at 1832, no sign of pest KXEL (DT)

+1550 WCVL IN 11/10 Noted this w/ s/off anct. 2300 (SWIGER)

KKJO MO 11/1 This one w/ soft RR 2145 (LB)

1560 KABI KS 11/4 Well o/ WQXR w/ state nx 1807 (FM)

KQYX MO 11/7 S/off 1817 mentioned 10,000 watts, no wonder they killed WQXR!-When did pwr increase go in effect (DT) Should have been late Oct. You got about 5KW at you, lobes go N, & S-SE---HNB

1570 KTER TX 11/7 W/ ending of bible reading 1846, then s/off-alone (DT)

WFRL IL 10/29 Much wanted w/ s/off 1801 & SSB, o/ WBEE (KDF)

WKOL NY 10/27 Rel. Pgm 1715, s/off gave 250 wt PSA pwr. I thought there were no PSAs on Canadian clears (SHAFT) Is MEXICAN clear----HNB

1580 WLSY MS 11/9 Only fair at 1801 for s/off (ELK) So ???

KLOU LA 10/28 RR 1920, then ID, dropped u/ WCLS @ 1930 (LB)

WEMP
MILWAUKEE

1580 KTUF AZ 11/2 Autumn pest returned 1856 w/ local nx, ID 1900 & into C&W (Starr) 11/10 C&W 1932, s/off mentioned FM KNIX 102.5, some WCLS/XEDM(DT) 1590 WMSO TN 11/2 Atop all (on car rx) w/ s/off 1800 (FM) midnight to sunrise

540 WDAK GA 11/11 Noted w/ RR 0406, still no KDLT-Must s/on 0400 MM (BS)

KDLT UT 11/11 DX TEST: If on, not heard 0200-0225+ (DS) Nothing but a lot of K TSA slop & an LA (KJ) Doubt I had it, freq. near dead, weak SS in there (JWB) No sign of test, only S Ser on top, & another in his null (HNB) No sign of this on test (ELK) Full ID 0239 w/ C&W mx in S Ser null (DT) ID weak, but clear 0233, some C&W mx, best 0244 w/ 1K TT--who was the SSB at 0238 here?? (KDF) Weak w/ usual S Sers, several short TT periods, couple of readable IDs, best at 0244 (JS)***EGAD, considering the number of DXers that tried & got nuttin', maybe another shot at this one??? We sure could use it, but conditions seem to have gone SA & CA again.

CBK SA 11/11 S/off 0205, last in continental US to hear this (DT) TRUE!!

KNOE LA 11/10 Fair sigs 0333 w/ RR (ELK)

WGTO FL 11/5 W/ RR & ads 0722, much WDAK QRM (KJ)

560 WHBQ TN 11/5 This one in 0730 w/ RR (KJ)

WIS SC 11/5 In u/ WHBQ briefly 0728 w/ MA BELL ad (KJ)

WJLS WV 11/5 W/ C&W, mention no school due to elections, 0728 (KJ)

WFIL PA 11/11 Noted this one off 0213, was back 0400 (DS)

CJKL ON 11/6 Strong in WFIL null 0056 w/ nx, s/off 0059 w/ GSQ. Also gave s/off for CJTT 1230--CJKL address as 6 HUDSON BAY AVE.--CJTT add as 213 Whiteford Ave. (DS) Boy is this gonna peive TRS a bit!!!--HNB

KLVI TX 11/10 Good sig twixt 0337-0340 w/ oldies (ELK) 126!!

580 WIBW KS 11/10 Solid w/ C&W 0347-0402, CBS nx 0400, ran spots for a TRUCK SCHOOL in Ft. Scott (ELK) Wow, more than 3 min. on one freq.??, shame on you!!!--Go to Ft. Scott & learn to be a TRUCK!!--HNB

*CKUA AB 10/21 Way o/ superpest CKY w/ instr. mx, wx, nx-0853-0905 (MS)

590 WVLK KY 11/11 On ET w/ OC 0354, jingle 0359-off 0400. Think TT b-4 (DS)

600 WCOA MD 11/11 RR 0215 on NIGHT OF SOLID GOLD. Rare here nites (DS)

WSJS NC 11/9 Noted AN w/ NITE FLIGHT show, MOR mx, ads, 0140-0144+(HNB)

+ KCLS AZ 11/11 Noted w/ s/off 0202-0204 using "This is my Country"(ELK)

610 *WDAF MO 10/20 Good w/ RR oldies 0530 w/ KPFC nulled (BP) NO COMMENT!!

*KRKE NM 10/20 Briefly atop 0520 w/ contest promo, seemed RR format as call given about every 5 sec. in promo. Also the usual hyped DJ telling a screaming 13 yr old they were a winner (BP) BRING BACK B. MITCHELL REED!!

620 WJDX MS 11/5 Came in u/ WETE w/ RR & Ads 0738 (KJ)

660 WESC SC 10/30 Political Ads 0655, ID, & C&W-mixing w/ KSKY (LB)

KSKY TX 10/30 S/on 0700 -- "Your SKY station"--UPI nx (LB)

*670 KBOI ID 11/11 TENTATIVE--weak unaccented EE 0528-0535 u/ WMAQ OC w/ nx, wx, low in 40's--chance of rain or snow, into MOR mx. NO ID heard but it has to be KBOI, if so tis a log change-listed MM-SP 0205-0700 (JS)

680 WMP5 TN 10/30 w/ comml. for local clothing store 0710, ID, RR (LB)

CFTR ON 10/27 FINALLY thru WAPA in WRKO null 0110 w/ RR (Shaft)

710 WOR NY 11/11 Noted off 0110-ID 0124 then OC (DS)

KIRO WA 11/11 Getting to be a PEST-Noted, often on top, in last couple WOR SPs. This time 0250-0302+ w/ MOR mx, ID, nx, etc. Seemed to s/off at 0402 w/ SSB. (HNB)

WDSM WI 11/11 Started to battle KIRO 0301, by 0305 on top w/ Wx, & C&W

KEEL LA 11/11 Alone w/ RR 0415, after KIRO off, no WDSM (HNB)

UNID ?? 11/11 Weak open carrier, some 1K TT during above loggings. DF was NE/SW--maybe CKZO on ET??? (HNB)

UNID ?? 11/11 Weak FF RR under all the above most of AM-CKVM??--HNB

*730 CHYR ON 11/10 Indeed using this call nights, easy log on AN show 0115-0145+ (ELK) Maybe CRIC waded rules requiring 2 calls (HNB)

WLOR GA 11/4 DX TEST:: Not hrd, altho have been hrd. on ETs several times b-4 (JS) Noted almost equal to th FFER on test (dm) Poor w/ XEX & WGN slop (KDF)

CNJR ON 10/30 O/ XEX 0010 w/ detailed wx & s/off (KDF)

740 CBX AB 11/4 S/off 0300 after piano mx pgm (see CBR 1010)(FM)

CBNM NF 11/4 Unreal, 2 Canadians on same freq. on same AM. Thought was on 730--hrd. detailed wx 0444--thought was CKLG till 0614 time check. Is Province #9 from Toledo & first NFLD in 10 yrs. (FM) 730 huh??? 119!!

KIXI

740 CBNM NF 11/4 Very weak s/on 0430 & soon faded out. Back 0436 w/ nx-wx & 0440 TC as 10 after 6, then "NFLD TODAY" pgm. (KDF) 11/4 seemed good!
 •KVFC CO 10/21 U/ KCBS 0858 w/ 4 state wx (BP)
 WKIS FL 11/10 Dominated 0418-0435 w/ mixed bag of mx (ELK)
 KMEQ AZ 11/11 DX TEST: Poor/fair w/ TT & C&W, much QRM from unid TTer
 This 0313-0322 (ELK) KRMG OC & TT a problem, hrd. a call ending in "0"
 couple times, noted WKIS after 0330 (JWB) Weak o/ noise w/ C&W, ID, later
 used some TT..Txn BW for tip (KDF) Some C&W-TT thru KRMG & KCBS ET w/ TT
 Only ID after C&W 0328--called & said was they.--also went back on 0335-
 ??? but hrd. even less then (HWB) In well 0300-0320+ w/ TT-C&W-IDs (JS)
 W/ C&W 0319 thru KRMG OC/TT-IDs 0323 & 0328 (DS) CONGRATS BRUCE!!---HWB
 KCBS CA 11/11 S/off 0306- no SSB- plugs itself as the first station &
 sez on since 1909 -- So far thats about 30 that were first--(HWB)
 KRMG OK 11/11 This clown on ET w/ TT/OC most of AM, ID 0330 & off (DS)
 Which left KCBS on ET at almost the same level (HWB) (KDF)
 790 KGHM MI 11/7 About even w/ WTAR 0048 w/ wx. Never hrd. this early b-4
 860 WDMG GA 10/26 Nx 0703, comml. for local electrical dist.-o/u CJBC (LB)
 900 WYCN OH 11/11 w/ C&W 0602-0610+ w/ 106 wt PSA-o/ CHML (JS)
 910 WOKK MS 10/26 Wx 0736, comml. for local Insurance agency, & ad for a
 local movie (LB)
 +920 KBBH MN 11/10 W/ nx 0158-0200-then C&W--log change (ELK) 11/12 On top
 w/ C&W & hick jock--local spots & wx 0020-0035+ (HWB)
 •KLMR CO 10/22 UPI nx 0805, local spots (BP)
 + •CFRY MB 10/7 Runs AN MM w/ C&W, first noted 10/7 & MMs since (FM)
 WPTX MD 11/4 W/ S/on & SSB 0502-only QRM from Canadians (FM)
 940 WESA PA 11/4 On ET w/ RR 0330+, was on b-4 & after but dunno how long
 (FM) Noted 11/4 on ET--mostly OC--some RR- ID 0329½ (HWB)
 +950 •KJR WA 10/7 Noted this & MMs since w/ "KJR plays better mx" drop-in
 before RR mx. Atop superpest KIMN (FM) Noted here, but way u/KIMN--HWB.
 960 •KNEZ CA 10/23 W/ some type of promo 0930, many "K-NEZ" plugs & u/ semi
 local KAVR (BP)
 CHNS NS 10/27 Finally w/ RR,nx,wx for Halifax,etc. Also noted the next
 morning. Province #7 (SHAFT) What time??-HWB
 1010 CBR AB 11/4 S/off at 0300 after pgm of piano mx. DX in tandem w/ 740
 CBX & got the IDs simultaneously. Noted same pgm on both 0258 (FM)
 1030 KTWQ WY 10/28 ID 0130,wx, political spots. Amazingly weak signal,guess
 due to DA pattern (LB) Gee, that might be the reason!--HWB
 1080 WTIC CN 11/10 Off for yearly POP- only KRLD o/ WKLO left all AM. Did
 note weak EZ mx & another w/ C&W way u/ KRLD/WKLO but way to weak for
 any copy--Think OREGON is C&W here--WTIC back 0457-no SSB (HWB)
 +1090 WBAL MD 11/5 Noted now running "NIGHTCAP" junque thing, // WHAS-KSL.
 0100+, how long has this been going on? (JS) SEE 1160 KSL item--HWB
 1110 KFAB NE 10/27 New State-#37, much WNEW slop but hrd. MOR there. Had to
 call station to confirm this. (SHAFT) Ma Bell loves ya'--HWB
 1120 KPNW OR 11/4 Religious stuff 0235-0301, then address given in ID and
 another similar show. Weak, but KMOX off (KDF) 11/4 Religion 0300-0430
 w/ KMOX off..Nx 0432 & OREGON mentions-State #46 (FM)
 1140 KRAK CA 11/11 S/off 0230 after relig. pgm.-Jammer weak this AM (DT)
 1150 WTAW TX 11/11 DX TEST: Not hrd. this date, or 11/9 --WGOW Strong(KJ)
 No sign of test, ditto 11/9 (JS) Only usual CKOC/WIMA/WNDB/etc. hrd. on
 both dates (HWB) Was an NNRC test so figured it wouldn't show (ELK) If
 on not noted this & 11/9 (DS)
 WGOW TN 11/11 Noted w/ Female anncr. & RR 0246, much weaker than on ET
 of late, maybe NSP now (DS)
 *1160 KSL UT 11/9 At 0205 beginning of NITECAP show w/ that sordid song
 they play. Mentioned WBAL new affiliate & said will be on 7 nites now.
 (KJ) So expect WBAL-KSL-WHAS to be NSP, or different SP for each??-HWB
 1190 KEX OR 11/4 promo mentioned something weekdays and at 5 PM, then
 had logo for Ai nx 0428 (FM) 11/11 extra long jingle 0219 followed
 by ID, into mx, very strong 0400 w/nx (DT)
 1220 CJRB MB 11/4 surprised to hear this w/WGAR booming away 0242, no
 ID heard, assume was this as // CFAM-950 w/cl mx (FM)
 WENC NC 11/30 w/political ad 0615 and promo BKB on FM and wx (LB)
 WSLM IN 11/30 w/local auto ad 0630, ID, wx and C&W ms (LB)

1230 •WSOO MI 10/14 poor w/much QRM 0643-0645, mx, ID, promo for nx (MS)
 +1240 •WENK TN 10/21 s/off w/SSB 0108, this a MM (FM) Log change (JS)
 •KWLC IA 10/7 s/off 0156 MM announcing Sunday sked to 0000 CLT (FM)
 Unid ?? 11/2 weak s/off u/mess 0200, no SSB, mentioned "remote
 controlled RCA XR", do anybody know who gives this info (JS)
 1250 CHWO ON 11/5 o/all 0106 w/ending of nx, refered to themselves at
 that time as "White Oaks" station (GG)
 Unid ?? 11/7 way o/WTAE/CHWO 0230-0240 w/non-stop FF RR (HWB)
 1260 WIBV IL 11/9 w/nx/sports/wx to 0100, then s/off, no SSB, gave
 0600 s/on o/WNDE (KJ)
 KGBX MO 11/9 w/NBC Nx 0100-0105, then s/off w/SSB male solo o/u
 WNDE (KJ) So that's who this is (JS)
 WNDE IN 11/9 left alone 0105+ w/Golden Grease Weekend (KJ) Hnamam,
 is Schmidt working there now? (JS)
 1270 KFJZ TX 11/9 powerful 0123 even splashing WNDE running Hit Music
 Contest (KJ)
 1280 WIXI KY 11/11 fair 0602 w/SSB and s/on (KDF)
 +1310 WIBA WI 11/4 noted 0205 w/WI temps, when did this go NSP or was
 this near s/off? (FM)
 WICH CT 11/6 DX we have several members reporting hearing bits
 of unid TT in this period. Well, it's a long story,
 I'll fill you in after the regular receptions (JS)
 WDOD TN 11/3 w/commentary 0456, call in nx promo,in briefly (PK)
 11/12 w/C&W mx, Ae nx 0030, local nx 0035 o/WNIC in
 CFGM null (HWB)
 WTTL KY 11/6 this is what everybody heard (JS) noted w/RR 0007-
 0025 topping freq during WICH ET period (DS)
 Unid ?? 11/6 two 40 or 45 second tone bursts noted 0025-0027,
 nothing else, was this WICH ET (DS) Yep (JS)
 Unid ?? 11/9 various pitched TT w/voice giving freq in Hz 0215-
 0225 o/WGH (DS)
 1320 WENN AL 10/29 s/on 0644, O&O by Hertz Co, then dropped for WHIE (LB)
 WHIE GA 10/29 TC, nx, ID 0645, ad for bank in Griffin (LB)
 WGET PA 11/1 frequent visitor at 0600 s/on using PSA power, first
 noted this date by myself, heard by GES before that (FM)
 CHQM BC 11/4 noted this date and 10/7 totally smearing usual pests
 w/soft MoR inst and infrequent IDs, was all alone on 0400(FM)
 1330 KQWL IA 11/9 noted on top 0205 w/RR (DS) So what? (JS)
 1340 KHUB NE 11/4 DX noted 0350 w/CW ID, then long detailed ID asking
 for reports 0340 (dm) 11/4 DX w/TT/CW/IDs/march mx
 poor to good (LB) Nothing heard here (JS)
 1350 WJBD IL 11/2 w/sports/nx/wx 0736, ad for local supermarket (LB)
 1360 KSCJ IA 10/28 w/Issues and Answers thru 0030 ID (LB)
 1370 KCRV MO 11/2 this 0715 w/ID, record offer, local wx (LB)
 + WSAY NY 11/6 all over WSPD w/heavy metal mx to 0030 s/off, log
 sez off 0000 (JS)
 •WSPD OH 10/21 had rare MM SP to 0300 (FM)
 •WLOP GA 10/21 had ET/OC, one ID 0138, then off (FM)
 + WPAZ PA 11/8 noted w/TT 0108, off 0115, believe this is my unid
 past few months, also think this is a RC (DS)
 WGHM MI 11/1 heard calls mentioned 0651 during nx in SPD null (FM)
 1380 WLCY FL 11/2 promo for BKB 0650, mentioned "Super LCY" good to
 WNLA s/on (LB)
 1390 WEAN VA 11/2 fading in/out w/WFBL 0245-0303, both w/RR (PrM)
 1394 •KHOB NM 10/14 L&C w/RR 0825-0900+, easy to separate from 1390,
 not noted before or since on this freq (BP)
 +1400 WR0Z IN 11/10 noted s/off w/SSB 0206 (ELK) Slight change
 WIEL KY 11/10 on ET/TT/MX 0152-0233, only ID 0231 (ELK) Log sez
 off 0206
 WMAN OH 11/11 s/on 0500 w/NAB Code, Ai Logo and local nx (JS)
 + WELK VA 11/11 s/on 0457 w/"America" vocal, then anncr (JS) Log
 change (JS)
 WMSL AL 11/4 noted 0028 w/birthday promo (FM)

KDAL
610 RADIO

- 1400 KEKY MN 11/4 this and MM 10/7 smearing freq w/instant MoR, frequent wx and IDs, sounded like 50KW (FM)
- WOND NJ 10/28 DX tent TT 0037 thru 0055 w/break 0047, fair to poor signal (KDF) 10/28 DX w/TT, IDs e/two min (PrM)
- 1410 CFUN BC 11/4 super signal 0133 dominating w/fone calls and sick 50's mx (KDF) 11/4 and 10/7 totally killed WING/KQV/etc MM format is RR oldies w/screamer anncr, always calls station "c-fun" except in official IDs, almost a pest (FM)
- 10/14 fair w/nx and United Way promo, RR 0647-0659 (MS)
- KRWB MN 1/14 s/on w/SSB 0659 wiping out CFUN (MS)
- WPOP CT 11/12 w/RR and usual stuff o/KQV in WING null during WHLN RC (HWB)
- WLBK KY 11/2 ID 0630 w/nx/wx/C&W, dropped u/WING 0632 (LB)
- WING OH 11/2 nx/wx 0632, auto spot, ID 0635 (LB)
- 1420 WHK OH 10/28 one of several, this w/sports mixing w/unid s/off w/SSB and soul mx 0003 (PrM) 11/11 noted on w/C&W all MM, NSP again (JS)
- WCOJ PA 11/6 s/off late 0100 due to elections (DS)
- Unid ?? 11/8 TT/OC way o/WHK 0135, off 0158 w/announcement "we leave the air until six o'clock" and gone (DS) Don't that just make your morning? (JS)
- 1440 WOHN VA 11/5 on ET, strong signal w/RR, jock asking for fone requests and announced ET (GG)
- KKXL ND 10/14 fair w/promo 0707 and mentions of Grand Forks (MS)
 - KQRS MN 10/7 mentions of nearby towns, called station "KQ", then into heavy RR 0522 after short dissertation about the USSR, totally shocked to hear this, no signal toward me at night (FM) I know a few guys who would send this to IDXD as USSR (JS)
- 1450 WILM DE 11/11 noted off 0415, so back to irregular MM SP again (DS)
- 1460 WPON MI 11/11 w/nx promo 0202, nx, possible s/off 0207 (KDF)
- Several members reported earlier this was AN MM, help (JS)
- ++1470 KAZM AZ 10/20 ET w/strong signal and patriotic mx 0450-0515, this a SM, v/1 sez to begin RS 11/1, QTH: Drawer 1525, Sedona 86336, probably on by now (BP) Another one I'll never hear due to local WPAR, whoopie (JS)
- +1480 WHCB OH 11/11 s/on w/SSB 0500, said been off since 0000, Log chge (JS)
- WLEE VA 10/28 this o/WISM 0119 w/RR and Big Lee promos (KDF)
- 1500 WDEN GA 10/28 ET w/many IDs 0315-0345, new (FW) NEW???? You've got to be kidding, puts in more hours on ET than RS (JS)
- KSTP MN 11/4 still on 0420 and announcing AN, NSP, goodbye CKEY (JS)
- +1520 WTUU OH 11/4 went NSP this date, MM announcer is GES (FM) So? (JS)
- 1530 WTTI GA 11/11 ET w/RR oldies 0123-0127+ (HWB) 11/11 ET w/RR 0200 (Swiger) 11/11 strong on ET w/RR 0140-0155+, IDs (DS)
- KNIE WY 10/28 noted w/ s/off and SSB 0207 (KDF) *Pres 11-11*
- 1540 WTKM WI 11/11 DX rough but made it thru WPTR/KKEL/ZNS 0335-0345 (DS) 11/11 DX way on top 0315-0345, lated than listed w/march mx, TT, many NRC mentions and polkas (JS) 11/11 DX about equal to usual ANers here (JWB) 11/11 DX in well 0332-0346 w/PTR easily nulled but WABQ AXR ET didn't help (ELK) 11/11 DX w/march mx 0319, TT, IDs alone until WABQ ET (KDF) 11/11 DX noted one ID 0332, not noted earlier (DT) 11/11 DX not heard here, WCKY QRM and unid TT (KJ) Not a sign of it (HWB)
- WABQ OH 11/11 ET/TT and R&B mx 0325 o/u WPTR (DT) 11/11 popped on 0320 w/ET (KDF)
- WPTR NY 11/11 noted AN, NSP now? (JS)
- 1550 KKJO MO 11/2 fair w/progressive mx almost alone, nx 0053, ID best 0152, MO #2 (PrM) Our new local (JS)
- + KOKA LA 11/9 s/off good 0130 s/off containt long list of names, credits for records, etc (KJ) Log change (JS)
- WAAV AL 11/9 first time heard since moving 0142 w/local nx and More Music promos o/KKJO (KJ)
- WEXT CT 11/9 ET/OC/TT 0110-0203+, long string of IDs 0200, no doubt to make up for the ones they didn't give earlier (DS)

- 1550 WCSJ IL 11/11 DX noted 0330 w/TT and IDs, soon covered by unid ET w/mx (KDF) 11/11 DX well, first ID noted 0306, inst mx, many IDs (KJ) 11/11 DX noted 0304 w/mx, IDs, lotsa WPTR slop, mx/TT/IDs 0313, more TT 0315 (DS) 11/11 DX good in WYNA null, TT/RR/lotsa IDs (HWB) 11/11 DX L&C w/TT/MX o/u WYNA ET/MX (JS) 11/11 DX fair 0315 (JWB) 11/11 DX w/ID 0322 and promo for Turkey Contest (DT)
- WYNA NC 11/11 noted OC w/IDs 0410, off 0412 (DS) 11/11 ET/MX/TT 0310-0410+ (HWB) 11/11 ET/MX/IDs 0400-0410, much TT/OC during WCSJ DX (JS) 11/9 ET/TT/OC 0204-0310+, ID 0306 (JS)
- WYOU FL 11/12 s/on in clear 0645 (JWB)
- WCVL IN 10/27 w/mentions of Indianapolis in ads, nx, etc 0657, ID 0100 then possible s/off 0101 (Shaft)
- Unid ?? 11/4 two ETers loud 0450+ w/TT/OC/MX, no IDs from either (JS)
- WIRV KY 11/2 ET/RR 0200-0235+ loud (JS)
- WYNX GA 11/10 ET 0236-0245 w/TT/OC o/KKJO (ELK) 11/10 ET/TT/OC 0430-0450+, ID 0441 (JS)
- 1560 KKAA SD 10/27 finally noted w/C&W but no IDs, called station, DJ said they beam north protecting WDXR/KPAC (Shaft)
- 1570 WGHC GA 11/11 s/on 0539 w/instant SSB, 298 watt PSA (JS)
- CKTA AB 11/1 noted just before midnite 10/31 w/RR, contest promos thru 0009 11/1, no ID other than "10-90 CHEX" (MS)
- 1580 WPGC MD 11/5 ET w/FM RS programming 0300-0315+ (JS)
- 1590 WTVB MI 11/1 w/nx 0645, auto spot, promo for local college (LB)
- 1600 WNST WV 11/4 ET/C&W, ID 0207 and off (KDF)
- WARU IN 11/10 s/on loud w/500 watt PSA 0558, used inst SSB after announcement (JS)
- WSTL KY 11/10 s/on loud right after WARU 0559, no SSB (JS)
- WAYC PA 11/11 (new, Bedford) late s/on 0608, must have PSA now (JS)
- WPOM FL 11/11 strong again 0159 s/off, return 0500 o/WWRL (DS)
- + CHNR ON 11/11 noted 0 Canada 0103, so evidently not AN, at least MMs (ELK) This is new Simcoe, ex-CFRS 1560 (JS)

Hi folk, Dr. Jerry here w/COMMENTS:

1310 WICH CT DX story like this: CE got sick so regular nite man did their RC which lasted 2 minutes. Frank Dailey called the station and eventually talked him into going back on so he had TT and IDs 0023-0026 and off. FD will contact CE about doing a DX.

1520 WYFC MI as mentioned in 11/11 DDXD was definitely using this call on my 10/18 reception, have good tape. Fanork! Too many vegetables!

A biggie this week, thanks for the support, even Myers forsaking his low profile to contribute. Cops quit looking for you, Dan? Now: Somewhere Uncle Wesley will add some further comments. Look for info soon about The Great Ohio Gettogether in Spring '75. The last one at my place attracted nearly 50 of the weirdest radio types I've ever seen- Starr

CONTRIBUTORS AND OTHER SUCH TYPES:

- SF: Stephen Francis, Alcoa, TN, equipment unknown
- JWB: Joe Brauner, Punxsutawney, PA, A2515, SM
- LB: Lou Buehler, St. Charles, MO, SX100, looped
- FD: Franklin Q. Dailey, Preston, CT, HQ180, beveridge
- KDF: Karl Forth, Villa Park, IL, HQ160, SM1
- GFj: Gorden Fenderson, Jr, Old Orchard Beach, ME
- KJ: Karl Jetter, Atlanta, GA, DX120, SM2
- PK: Pete Kemp, Bethel, CT, S85, SM2
- PrM: Paul Mount, Teaneck, NJ, RF564 (whatever that is-JS)
- Shaft: Rick Shaftan, New York, NY, Phillips IC portable
- MS: Morris Sorrensen, Leaf Rapids, MB, HQ150, SM2
- DT: Dick Truax, Jeffersontown, KY, HQ150, SM2
- FW: Frank Wheeler, Erie, PA, equipment unknown



EDWARD KREJNY

- FM: Frank Merrill, Toledo, OH (where?) HQ129, 100' LW in bedroom sink
- Swiger: William Swiger, Bridgeport, WV, equipment unknown
- DS: Dip Schmidt, New Kassel, DE, HQ180, SM2, FU2, RU-1-2
- GG: George Greenie, Dacron, OH, equipment unknown, even to George
- BP: Bruth Portzer, Seattle, WA
- ELK: Edell Bedoya Krejny, Middleburg Hts, OH, HQ145, Raoul 120
- HVB: Wess Boyd, Girard, OH, HQ180, loop of sorts
- JS: Myself, Hubbard, OH, HQ180, loop, Wild Turkey powered LW
- OTHERS:
- dm: Dan Myers, Toledo, OH, HQ180, loop (a very SHORT loop so Dan can reach it)

WHOT seekers: We are back to normal night operations as of 11/14/74
If we left anybody out from the above....TOUGH! (JS)

WRMA KLZ 73 and Bad DX,
RADIO 560
 P. O. Box 8147
 Montgomery, Alabama 36110
 WES & JERRY

CPC TEST DETAILS.... CONTINUED FROM PAGE 2.....

- KLJFJ - Gospel mx w/ many IDs. V/s: Billy Wolfe, CE & Pres., Main P.O. Box 801, 65801. Arr. Ernie Wesolowski, NRC/IRCA ; Jim Pogue, NRC.
- WJLK - No program details. V/s: Frank Huber, CE; Press Plaza, 07712. Arr. Bill Eckerd, NNRC.
- WTGA - No program details. V/s: Kenneth Kunze, GI & CE, 112 W. Washington St., 46563. Arr. Dabelstein.
- KSGT - No program details. V/s: Wm. L. McManus, CE, Box 100, 83001. Arr. Dabelstein.

TWO LAST MINUTE DX SPECIALS:

SUNDAY MORNING, DECEMBER 01 - 0200-0300, WREY-1290, New Albany, IN. 500 watts, Day. Will use TT and mx. This is a re-sked of the November 3rd TEST. V/s is Larry Price, address as in log.

MONDAY MORNING DECEMBER 02 - 0200-0300, WFIA-900, Louisville, KY. 1000 watts, Day. Will use Gospel mx & IDs. Simulcast with FM. V/s is Dave Dodd, address as in log.

Both of these tests were arranged by Wayne Murphy, NRC.

NEXT ISSUE IS DECEMBER 9 NEXT AFTER THAT IS DEC. 16
WE ANTICIPATE THAT BOTH WILL BE 48-PAGERS AS PER OUR LIST
OF ITEMS IN THE HOLDING PATTERN LAST WEEK PLUS NEW ITEMS
SINCE ARRIVED.

JEFF ROBERTS - 945 East Moore - Decatur, Illinois - 62521 43
 CX are still improving. 10/24 SSS- KLCL-1470 Ia. on top @ 7:42pm., w/ads & c/w noted. KLI-1570 Ia. alone w/an excellent s/off @ 7:47. I believe I had KTRN on 1290 @ 7:54, but it was gone before I could get an ID. KDKD-1280 Mo. was mixing w/others & signing off @ 8 which seems late since my locals were off @ 7:15. No KHYM TEST heard MM 10/28. 10/28 SSS, WRNG-680 Ga. fair @ 5:54 pm. KMAM-1530 Mo. in u/WCKY w/s/off @ 6:45. 10/29 SSS- KRBC-1470 Tex. messing u\$ local WMBD @ 6:25pm. KRMC-1220 Okla. w/a weak s/off noted @ 7 & KGYN Okla. was all over 1210 until pattern change @ 7:15pm. KOB surprised me w/fine signal @ 7:20, no WABC nor Ias. 10/31 SSS- KUSN-1270 Mo. atop w/strong signal @ 6:28pm. KGEX-1280 Mo. w/a nice ID @ 6:30. KRLD usually dominates 1080 @ SSS, but WTIC was overpowering tonight. Central Illinois local off @ 5:45pm EST during November. 11/1- Good CX, no Aurura. WWTC-1280 Minn. atop @ 6:30pm w/strong signal, unusual! MM 11/4- KMOX noted off, but too much noise to hear anything on 1120 except a weak IA. WLOR-730 Ga. TEST copied well from 3:10:33:30am, report sent. 11/5- CX sounded great. WIP-610 Pa. making an unusual appearance @ 6:53 pm. 11/7 SSS- WBCA-1110 Ala. alone w/ID @ 5:48pm, then s/off. WOKK-910 Miss. atop w/Miss. NX, then ID @ 6:11, excellent signal. KZRK-1540 Ark. like a local w/s/off @ 6:17, KXEL completely buried! All for now. 73s.

DICK TRUAX - 3003 Gleeson Lane - Jeffersontown, Kentucky - 40299
 DX in the past two weeks has improved markedly. Thanks to a note from Charles Wolff in Calif., it appears my tentative 1100 unID of three weeks ago was indeed KFAX, but since I need an ID U won't count as logged until I log an ID. Thanks also to Dabelstein's call & Wesolowski's & Winkleman's notes alerting me to KMBO-740 last minute Special on MM 11/11. Unfortunately if KMBO was on, it didn't make it through a WHAS spur, WKIS, & unID TT on @ 3:08am - I stayed on frequency for ten minutes w/no success. Other recent DX of note: 11/7- KQYX-1560 Mo. s/off @ 6:17pm mentioning 10,000w - no wonder they clobbered WQXR/WDXR duo! KGBC-1540 Tex. w/mx on Ace Bandstand & ID all alone @ 6:32pm. KTER-1570 Tex. s/off @ 6:46pm after Bible reading, KXOL-1360 Tex. o/regular KEFA @ 7pm w/r/r on Russ Mark Show so strong I thought 'twas WSAI. 11/10- KLEO-1480 Kans. @ 6:13pm w/r/r & ID thanks to tip from Pat Hartlage. KTUF-1580 Ariz. w/c/w & s/off @ 7:32pm mixing w/XEEM. MM 11/11- WIOD-610 Fla. s/off @ 2 as was unKMOD-600 Tex. @ 2:05. KEX-1190 Ore. w/long SID, then ID, into mx @ 2:19am w/KLIF nulled for state #43 logged, heard unID c/w also which may have been much-needed KRDS but no ID possible. KRAK-1140 Cal. s/off @ 2:30, KDIT-540 Utah TEST in well w/unID SS nulled @ 2:39am w/c/w, & ID. WCSJ-1550 Ill. nicely @ 3:22am w/ID & ad for turkey contest, then TT; WABQ-1540 O. on ET @ 3:25 while looking for WTKM, WTKM-1540 Wis. @ 3:32am w/ID o/u WFTR. UnID religious format on 1100 a-gain @ 3:55am very readable, but alas, WHLI again was on w/ET @ 4 killing chance for ID as three weeks ago. I said "----" & went to bed. More in 14. (You should have gone the other way first, Dick, hi -ERC)

DON EGGERT - Box 253 - Bowling Green, Kentucky - 42101
 11/8. Greetings from the Bluegrass State. Note the new address. I've moved to a new location about one mile from previous location, but more significantly I'm no longer in an apartment & as a result I am away from the TVI, electrical buzzing, static & everything else that goes with DXing in an apartment. There is a tremendous difference. I've done a little DXing here with the following highlights: 11/6- KRVN-880 in good @ 5:54pm EST w/WCBS looped, evidently they (KRVN) are still having XR troubles (per Dave Fischer's tip at the NRC Convention. Later that day, WDDT-900 s/off @ 6pm, & WTOC-1290 @ 8:34pm on top of the channel w/the usually dominant WHIO absent. 11/7- KQYX-1560 @ 8:15pm s/off, & KLWL-1480 @ 9:02pm w/FB. I too am in bad need of a new NRC Log as my current one is getting badly out of date. 73. (Did you hear about the cow which ate the Kentucky Blue Grass, Don, and mooded indigo? -ERC)

BILL COLEMAN Jr. - 114 Circle Drive - Rocky Mount, North Carolina - 27801
 WRMT was on 10/20, but from 5:35-5:50am - look for the f/c a-gain on 11/17, same time, w/1kHz TT & "go all the way" by Raspberries, repeated w/ID, power @ 1kw. Tower height is only 147' & they have ordered a new Gates XR which will be in soon, I hope. WRMT has a weird signal around town, especially at night, which is very weak (250w). By the way, I s/on @ 6 SMs & work till noon, & work Sun. night, 9pm-midnight. Call prepaid 919-442-8091 or 919-442-0452. Mr. Apple in Burlington does the checking.

GORDON FENDERSON Jr. - Smithwheel Road - Old Orchard Beach, Maine - 04064

Hi again! First, some corrections from my first Muse: WGAN is 560, not 1560 as printed. CJIS was DXed 9/24, not 8/24, & WWL 9/17, not 8/17. Here is a list of my locals & semi-locals, & some info on them. WGAN -560 Portland, MoR, dropped CBS Mysteries recently. WEET-590 Boston: all NX (NX Radio 59 - CBS owned). WRKO-680 Boston: rr 24 hours. WJTO-730 Bath: rr, simulcast w/FM. WHEB-750 Portsmouth: rr, NX seven minutes to hour, FM simulcast. WHDH-850 Boston: MoR, some EL. WKXA-900 - rr, Ai NX, FM Simulcast. WNNH-930 Rochester, N.H.: CBS NX, MoR, some c/w. WKXA is in Brunswick. WCSH-970 Portland: MoR, EL, NBC NX (WCSH & WTIC are the two NBC stations under original owners), WBZ-1030 Boston: MoR, Group-W NX. WSME-1220 Sanford: Drake rr, no more CBS NX. WLOB-1310 Portland: rr, Ac NX, "\$1 a minute in giveaway money." WIDE-1400 Biddeford: Ai NX, rr by day, '40s standard by night. WJBQ-1440 Westbrook, Me.: Ae NX & rr "where the winning is still just beginning", FM simulcast. Finally, WMEK-1510 Boston ("X-15") Ac NX, 24hours-rr. One more thing: On 10/30, I thought I heard VOA on 1180, but at 3pm, EST, I clearly heard ID for AFRTS! Any reason why? The Canadian Government has a good book on "Radio Aids to Marine Navigation - Atlantic & Great Lakes" for 75¢. Tells when some marine WX forecasts are on. Write to Information-Canada book store near you for info. 73.

BOB FOXWORTH - G.P.O. - Box 2111 - New York, New York - 10001

My rotary antenna switch is finished. It's a six-position switch with two gangs, front & back, feeding the A1 & A2 jacks on the HQ-150. It selects either of two balanced loop inputs, either of two unbalanced wire inputs (or a Space Magnet-type antenna with single co-ax leadin) with the rear gang then grounding, or a spare, or a dead short for test purposes. This now gives me instantaneous switching between my loop & either LW, for comparison purposes. The results have been really surprising. I have had solid, strong copy of stations like WPOR-1490 on one wire, weak copy of the same station at the same time on the other wire, & other cases where an IA would be well heard on the second wire, better than on the first. While one wire is quite directive and responds well to the NE, the other gives 15 to 20 db more gain & works better on the 75 & 90 meter bands (where I've been spending more & more time in an effort to combat the boredom of very poor MW CX). The instantaneous switching is really valuable. The switch is mounted at the rear of the RX w/a long extension shaft going to the front. Details will appear soon in a special paper in DX NEWS. MM 11/4 an UN-ID EE rocker w/British accent, six pips @ 2am on 1187. MM 11/11, I was too tired to stay up, but CX seemed very bad, again, so I don't think I missed anything. Nice to talk to Rick Heald on the phone a few weeks ago on 10/21. We compared notes on CX w/KGHO TEST coming up later. While simultaneously DXing I noted XEDM & XERI-1500 in well, KFI poor u/CMQ & nothing from KSL KFKB nor KING. Speaking of 1090, WEAL is due to begin carrying the Herb Jepro Nightcap Show (now heard on KSL & WHAS) so look for 1090 to be blocked MMs, maybe by now. If you need a timecheck, the four time tones on WCES-880 can be used, the last tone is accurate to less than one second & can be heard at :00 & :30. The tones are on cartridge which is started automatically by a digital clock with binary coded decimal output feedin a coincidence gate which starts the cart @ 29:55 & 59:55. It's a good double-check for your own clock without the bother of tuning to WWV.

DAVE WHATMOUGH - 294 Main Street West - Hamilton, Ontario

On the local scene, CHNR-1500 has been on since 11/1 w/10,000w & CFRS-1560 is now history. Sked is 6am to 1:05am. Calls stand for Haldimand-Norfolk Radio. Other DX as follows: KKAA-1560 heard briefly 10/26 @ 1:30. 11/5- KKKL-1440 for call change from KILQ. WQSH-1490 on top of the mess for a few seconds @ 12:45. I tried for WLOR-730 but heard only CXAC. One lone verie has arrived in the form of a v/l from local CJMR-1190 for July report. Just as a matter of interest - CJMR & CHWO are using the same towers located S of Oakville, approximately 17 miles from my home. CHWO's signal here is 50 db o/S-9 compared to CJMR's 10 db o/S-9, both w/10kw. (Is it thus possible for them with this arrangement to have different patterns? -ERC) ** YES. Different phasing between towers - RJE

WE WANT TO WISH EVERYBODY A VERY HAPPY THANKSGIVING DAY, AND WE HOPE YOU WILL GET INTO THE GROOVE OF MUSING FOR DX NEWS. THERE'S LOTS OF YOU OUT THERE, WE KNOW, WHO ARE ACTIVELY DXING - LET'S HEAR ABOUT WHAT YOU'RE HEARING! OTHERS ARE INTERESTED! USE E.S.T. AND DOUBLE SPACE, & USE A.M. & P.M. THANK YOUSE!

GEORGE C. GREENE - 1527 Sunset Avenue - Akron, Ohio - 44301

Hi all. It's been a while since I've been in these pages, but since some listening has been done lately, I thought I'd better report what I heard, hi. New catches of late are: 11/5- WOHN-1440 noted w/ET @ 12:36am, rr, & the jock giving phone number for requests between each record & mentioning it was an ET. CHWO-1250 Ont. @ 1:06am ending NX, WKIN-1320 w/rr @ 5:10pm, WYNK-1380 beginning state NX @ 6pm; KLIZ-1380 was heard @ 5:42pm on the 6th. 11/7- I had WHOK-1320 & WMRN-1490 new, both during the daytime & w/13Q & WJMO nulled, respectively. 11/10- Some SSS DXing gave WBBB-920 @ 4:49pm w/rr, WENC-890 easily o/a nulled WLS w/state & local NX @ 4:54, & the WPKM-1540 TEST was logged here @ 3:18am 11/11 w/TT, march mx, & "regular mx" - ID given @ 3:23am. Also, on 1550 @ 3:28am 11/11, I heard variable TT, & mx which ended abruptly @ 3:30 w/no ID - was this the WCSJ TEST? Other, unnotable, receptions: 11/5- KOAM-860 u/CJBC w/"Lifeline" @ 5:25pm; WHLN-1410 noted 5:15pm on 11/10 w/KY NX. 11/11 saw WOKY-920 w/an ET @ 3:42am, rr, some OC, & a strong signal, & KCMO-810 @ 3:47am w/"Super Safe Contest". Totals here now stand at 754/119, states 45/29, provinces 7/3, & countries, 16/4. I tried some SSS DX 11/11 but CX were very Auroral, w/nothing audible except stations within 200 miles, some Toronto/Montreal stuff. No reports out - in fact, the last verie received was WPRW-1460, for reception back in June. For those who don't know me, I am also into FM DX quite a lot - during the Summer especially, & collect both SCs & CMs. Those interested in trading SCs and/or CMs, please write. Changes on the local scene would include WLXY's definite plans to move their XR about five miles S of its present location somewhere near that of WGAR's. And WGAR is thinking (nothing definite yet) of moving their site to the S a bit also. I was in N.Y. last week (10/28-11/2) & managed to visit Paul Mount and Richard Shaftan. I hope to make it to the Thanksgiving Gettogether out there also. 73.

WAYNE MURPHY - 1411 Phyllis Avenue - Louisville, Kentucky - 40215

502-368-9455, 5-10pm EST weekdays, all day weekends. Hello again. I'm now the proud owner of an HQ-129X thanks to a hot tip from Pat Hartlage. Now my old (five months) Astronaut-8 will be relegated to FM DXing & as a second RX. I finished October w/6Q loggings, & have 39 already this month, in nine days! Totals now 618/35/4/9. State #35 came in just tonight (11/9) w/KTUF-1580 fair/poor 6:55-7:30pm s/off. I managed to get hold of Pat Hartlage & he logged it as well. To all those who tried for the WREY TEST on 11/3; it never happened. I called up CE Larry Price the Friday before & he said he'd be very busy that weekend & he didn't think he'd get a chance to go up to the XR. I didn't listen though & couldn't confirm if it was on or not. The test for Dec. 1, same time, is still on. He told me their pattern is aimed just W of S, and reaches a peak of 2,000w. I don't know how much signal it has in other directions, probably not much. Well, the IADS (Louisville Area DXers, hi) will be having another get-together on Sat. Nov. 30, & I have the honor of being host. We hope this one will be bigger & better, & several out-of-towners have been invited. It's open to anybody though, as long as they let me know in advance. I hope it doesn't drain too much of the N.J. get-together, hi. Nothing else to say, so 73.

FRANK MERRILL - 1560 Brooke Park Drive #8 - Toledo, Ohio - 43612

Picking up from last week: 11/5- WHAG-1470 s/off-SSB 4:45, WEIC-1270 5:35 ending MEX NX, then ID; KUDL-1380 atop all @ midnight w/oldies rr. Today, 11/7, @ SSS, I logged long-sought WKPR-1420, then @ 6:11-6:12, KAIT-900 & KEGG-1560. I am really breezing along now, with 52 newies in the first week of November, already blitzing October's total of 45. I'm after DAN MYERS' hide, hi. SCers, bumper sticker collectors & particularly those who have radio T-shirts for trade, WRITE! Any serious DXer should consider investing \$80 in the Panasonic transistor radio I mentioned - it really works! I hope everyone's having great DX! 73.

JACK HATHAWAY - 2109 Tamarack Court - Champaign, Illinois - 61820

DX: 11/1- WOKJ-1550 - I did not hear WCSJ TEST, 3am. 11/10- KNOE-540 6:15pm. KSD-550 7 09. WIND-560 7 09. WKYX-570 7:53. WELQ-580 8:24. 11/11- WIP-610 1:43am. KKOK-630 s/off 2am. CMHQ-630 2:01/ HCFA2-540 #699 @ 2:30. KDLI-540-TEST #700, sent report. WPKM-1540 TEST, #701, sent report. KPOL-1540 #702. WCSJ-1550 #703, sent report, but I missed WTAW-1150 again @ 2 05 as I just couldn't pull anything through. Best 73 & dx. WE SKIP NOW ONE WEEK: THEN THREE CONSECUTIVE WEEKS: THESE ARE THE LAST OF MUSINGS TO BE DONE IN BROOKLYN. STARTING WITH THE 1/6/75 ISSUE, HQ IS PROVINCEOWN!

JIM CRITCHETT - 1103 North Street - Yreka, California - 96097

From 10/10 to 11/11 reception reports have been sent to KXXR-1440 Spokane for SM "Master Control" program, 9-9:30am ELT 10/13; to KGHO-1560 for TEST programs MMs 10/21 & 10/28; to KBES-1540 for AN program MM 10/21 3:34-4:07, no advertisements; & to KDLT-540 for TEST MM 11/11; good signals on all stations. Verifications have been received from WWWE-1100 v/q, KAIN-1340, KXXR-1440, WHCB-1480 (v/q & studio photo), KBES-1540 & KGHO-1560. A second f/up has gone to KEDO-1400, CFJC-910, CHNL for CINL-1400, KWIV-1050, & KSNN-1290. KKA-1560 has not verified 9/27 report. DX notes, for the benefit of other WC DXers. KAIN-1340 is the station carrying the Kathryn Kuhlman program 7:30-8am, IDed 10/10. I forgot to listdn to the KDDD-800-TEST on 10/14. KHIT-1320 had Mutual NX @ 10:34 Thu. 10/17, & ID @ 10:44, w/KXRO. WMOP-900-TEST 10/20, only TT heard; Freeman reported, & they verified. KPRO-1440 broadcasts hockey; do not mistake for CFCP or CJOI. CINL-1400 said now four stations in family. KAMA-1060 assumed to be the one w/TT 2:04, MM 10/28; too much XETRA-690 for KHEY; if on r/c. KHSL-1290 on @ 8:35 Tue. 10/29, NOT AN. KSVC-980 @ 8:30 s/on, 10/30. 10/31 ended 1 1/2 years of DXing in Yreka; 650 stations heard, of which 107 were entirely new; 1,598 veries, 1,594 for Cal. reports; 18 received in Yreka. 11/2-5, trip to San Diego; so no DX Specials heard 11/4. KNLW-1060 assumed the f/c-TT 1:09-1:12 11/8; KMWX-1460 now AN, SPU; KOIN-970 AN-6; on @ 8:38 11/10. No WTAW WTKM nor WCSJ 11/11. The DX is there; be patient. Best wishes. c (Rec'd 11/14 -ERC)

RAY ARRUDA - 6 Wilbur Avenue - North Dartmouth, Massachusetts - 02747

There's no happy medium lately as far as DX gets - CX are either good or bad! SM 11/3- I was listening on 1290 at the time of WREY's TEST but it was just the usual WHIO/WNEF, w/WICE off. 11/6- WICH DX not tried, but I sent them a report for 11/9 PM reception. MM 11/11- Not good, w/then HNLs back again. WTAW WTKM & KDLT TESTS all tried but not heard. WCSJ-1550 was tentatively logged & reported w/TT & voice IDs. Newstations for the logbook: WABL-910 (Me. #17) WPDJ-750, WPHB-1260 & WCSJ-1550. I received five veries on 11/7 for personal record. Latest veries to come back are: cards: WFLN-900 w/CM, WPNQ-1530. v/1- WCAS-740 WQTR-1060 WCHV-1260 w/CM, WQEK-1300 w/CM, & WWSC-1450. CPC TESTs this year are 1-for-13, not very good. Happy Thanksgiving to you all. Count your blessings. (Ray, who is your v/s for WQEK-1300, please? -ERC)

CHRIS LUCAS - 22 Morris Street - Danbury, Connecticut - 06810

A little more DX listening during past two weeks netted 43 loggings to bring total to 187. Best frequency so far here is 1310 w/eight, including WEEL Va., which was never heard in either Fairfield Conn. or Ithaca, N.Y. WEEL was logged 10/28 @ 6pm. WHOT-1330 logged later that night @ 1:28am. CKPC-1380 Ont. noted @ 1am 11/6. WTVR-1380 Va. @ 9:44pm 11/8. I did DX MM 11/11 & got WHHH-1440 O. @ 11:55pm (11/10), WHIS-1440 W. Va. @ 12:07am s/off, one of very few non-DA regionals in E, gets out nicely. WHIS is W.Va. #1 here so far. WSGO-1440 N.Y. E'ing @ 12:13am, WENS-1460 O. @ 1, WBCB-1490 Pa. @ 1:35, WTTI-1530 Ga. E'ing @ 1:58am, kind of weak for 10kw - I don't know whether due to pattern or mountain blockage near the NW Ca. XR. WBSM-1420 noted @ 2:06am. I tried for the MM TESTs, but only WCSJ made it, logged @ 3:15am u/unID OC/TT. Everything else logged recently is very routine. I still have a number of clear channels & semi-locals to log. I'm just DXing every once in a while so log is building slowly.

ERNEST R. COOPER - 438 East 21 St. - Carrier Route 52 - Brooklyn, N.Y. - 11226

MM DXing continues: 11/11- WOR-710 off again, this time everything's off, including carrier. That MoR w/EE & some SS records heard again, & he seldom speaks a word & when he does it's through the mx & not very easy to cabische, so he's still unID - I don't think it's CJRN, either. Unns: WWSC-1450 on top @ 2:05, RS. On 1400, WWIN ditto; & on 1340 it's a toss-up between WMID & WOOK. WTTI-1530 doing its thing again @ 2:09 E/rr; TTs on 1440 & 1550; WKIS-740 unusually loud @ 2:53 am, AN-rr. Who was the TT/OC o/u CMBC-690 between 3 & 3:30? WGES-710 off @ 3 35 w/brief ID, leaving the above 710-er to tease me. WWWE-1100 was E'ing @ 2:19, and I don't think the religious one on 1100 is KFAX as I heard Billy Graham there @ 1:59, just starting his sermon (on DEATH yet!) which I had heard several hours earlier Sun. eve. on WOR, & I didn't remember to tune back @ 2:15 to try for the ID, but @ 2:18 WWWE was testing - was WWWE the one with Billy Graham? 'Twas fairly loud, but not loud enough for WWWE, methunk. Yuck - WPTR-1540 is no longer off MMs - I think they ARE silent SMs, though. Odd as it used to be KXEL-1540 off SM & WPTR MM - now it's the other way around! CUN14

National Radio Club Awards and Certificates

Norman Maguire, Awards Manager

The National Radio Club issues two series of awards to its members. They are for Verified Stations Only.

The first series is issued for Total Verifications, in steps of 500 verified stations. This award is issued on an honor basis. Just indicate to the awards manager the number of verifications that you hold and the award will be issued.

The second series of certificates are issued for Countries Verified. These awards are issued in steps of 25 Countries Verified. In applying for any of these Country Awards, you must list a representative verification from each country: Call, if any, location and frequency.

The awards manager has the right to request the member to submit a copy of any verification that the awards manager may question.

The Awards and Certificates are issued in conjunction with the Supremacy Ratings column. When a member reaches a new plateau, he will automatically receive a new certificate upon passing the required number of verifications.

There are no fees for the awards. However, the awards manager would appreciate return postage if you have any questions regarding the awards or your applications.

Music Broadcast Decree To Take Effect Nov. 15

Daily Journal Staff
Communications Minister Armando Sanchez Bueno announced yesterday that the decree requiring Venezuelan radio stations to broadcast an equal proportion of national and foreign music will take effect on November 15.

Presidential Decree No. 370 orders radio broadcasters to provide an equal amount of airtime for Venezuelan music and for music brought in from other countries. The decree is an attempt on the part of the government to provide an outlet for Venezuelan composers and musicians and to limit the overwhelming wave of music on local radio programs that comes from other countries, especially the United States.

The Minister also said that Inciba, the National Institute for Culture and Fine Arts, is completing a study of Venezuelan programming that will be used in setting up standards for national radio broadcasting. This study should be completed by the middle of this month.

Sanchez Bueno also sought to dispel rumors about state takeover of the radio and television industry in Venezuela, saying that "no such measure" is being planned at this time.



Armando Sánchez Bueno

"Caracas Daily Journal" 11/7/74.
Submitted by Angel Garcia.

CLIPPING CORNER