



VOLUME 13

NO. 10



# DX MONITOR



PUBLISHED BY

THE INTERNATIONAL RADIO CLUB OF AMERICA  
WHOLE NO. 393 NOVEMBER 29, 1975

## DX CALENDAR DX CALENDAR DX CALENDAR

ELT

Both Sun.	12- 7-75	0000-0300	WTHD- 930	Milford, DE	½kw
Both Mon.	12- 8-75	0115- ?	WLLL- 930	Lynchburg, VA	5kw
NRC		0230-0300	WIVY-1280	Jacksonville, FL	5kw
NRC		0300-0330	WNRI-1380	Woonsocket, RI	1kw
NRC		0330-0400	WMTY-1090	Greenwood, SC	1kw
IRCA Mon.	12-15-75	0100-0200	WKTJ-1380	Farmington, ME	1kw
NRC		0115-0200	WWNS-1240	Statesboro, GA	1 1/4
IRCA		0200-0230	WRAM-1330	Monmouth, IL	1kw
NNRC		0300-0315	WKLF- 980	Clanton, AL	1kw
IRCA		0300-0330	KXRB-1000	Sioux Falls, SD	10kw
NNRC		0400-0500	WSOY-1340	Decatur, IL	1 1/4
NRC Mon.	12-22-75	0100-0200	KATE-1450	Albert Lea, MN	1 1/4
NRC		0300-0500	WCCP-1560	Clemson, SC	1kw
NNRC		0400-0500	WENN-1320	Birmingham, AL	5kw
NNRC Mon.	12-29-75	0100-0200	WGIL-1400	Galesburg, IL	1 1/4
NRC		0300-0330	WFRX-1300	W. Frankfort, IL	1kw
NRC		0330-0400	WBAW- 740	Barnwell, SC	1kw
NNRC		0400-0500	WMAG- 850	Forest, MS	½kw
NNRC Tue.	12-30-75	0400-0500	WIRE-1430	Indianapolis, IN	5kw
NNRC Mon.	1- 5-76	0100-0200	WBSM-1420	New Bedford, MA	5kw
IRCA Mon.	1-19-76	0300-0330	WSUB- 980	Groton, CT	1kw
NNRC Mon.	2- 9-76	0200-0300	WBRW-1170	Somerville, NJ	½kw
NNRC Mon.	2-23-76	0200-0300	WCVS-1450	Springfield, IL	1 1/4

"Both" means IRCA/NRC

WTHD-930 (daytime only) will have DA NW to SE with pop music and IDs quarterly. R/c on 1st and 2nd Sunday morning of each month. Reports to Mark A. Crouch, P.O. Box 324, Milford, DE 19963. Arranged by James Hopkins.

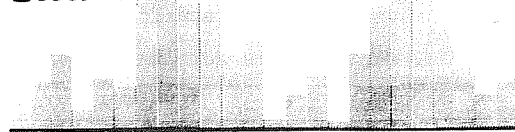
WLLL-930 (daytime only) will test with 500, 1000, 5000, and 7500 Hz. V/s K. Wayne Long, CE, P.O. Box 1510, Lynchburg, VA 24505. Arranged by James Hopkins.

WIVY-1280 (daytime only). No program details. Reports to Donald Fleming, CE, Gulf Life Center, Jacksonville, FL 32207. Arranged by Neil Zank.

WNRI-1380 (daytime only) will use Top 40 and code IDs. V/s Craig Healey, CE, 786 Diamond Hill Road, Woonsocket, RI 02895. Arranged by Skip Dabelstein.

WMTY-1090 (daytime only) will test with tone. Reports to Johnny Chisena, Pub. Rel., Burnett Rd., Rt. 4, Greenwood, SC 29646. Arranged by Skip Dabelstein.

## Geomagnetic Indices



The next period of significantly depressed telecommunication conditions is expected to begin about 29 November.

SAN DIEGO EVENING TRIBUNE 10 OCT 75

### ANNOUNCER ADDS TEAM

PHILADELPHIA — Andy Musser, a man of many hats, added another one to his wardrobe yesterday.

The 38-year-old sports announcer joined the broadcast team of the Philadel-

phia Phillies, relacing Byrum Saam, for next season.

Musser, besides being sports director of San Diego's KSDO radio, announces San Diego Chargers and USC football and Chicago Bulls and USC basketball.

He joins Harry Kalas and Richie Ashburn on the Phillies' crew.

## BROADCASTING

### INFORMATION

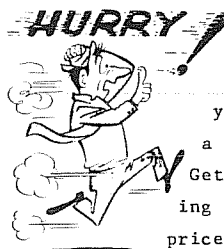
(as compiled by Mike Worst)

	Day	Nite		
WJIG	740	250w	Tullahoma, Tenn.	requests WBGY
WQIK	1090	10kw	Jacksonville, Fla.	" WCMG
new	1190	1kw	Wabasha, Minn.	CP
WDAT	1380	1kw 1kw	Ormond Beach, Fla.	to 5kw-D, 1kw-N
				DA-2 from DA-N
new	1390	500w	Reidsville, Ga.	requests WTNL
KAHL	1410	1kw 500w	North Platte, Neb.	to 5kw-D, 500w-N
WRDS	1450	1kw 250w	S. Charleston, W.Va.	requests WSCW
WTXL	1490	1kw 250w	W. Springfield, Mass.	" WNUS
WTUU	1520	1kw 1kw	Toledo, Ohio	granted WANR
new	1540	1kw	Whiteville, N.C.	requests WOOZ
WEUP	1600	5kw	Huntsville, Ala.	to 5kw-D, 500w-N

From the November 10 and 17, 1975 issues of Broadcasting.



### SPECIAL NOTICE



**HURRY!** The Foreign Log Volume 4 will be published sometime before the end of the year. To IRCA members only we will have a special pre-publication price of \$3.75. Get your orders in early while we're feeling generous, because after publication the price will be \$4.00, \$4.25 to non-members.

## The Inside Story —

EDXR } CDXF - - - - 116, 117  
CDXR } Wha' hopen? WDXF - - - - 117, 118  
WDXR }

DXWW - - - - 119, 120 DXWW II - - - - 121  
Ad-Visor - - - - 118  
The Good Old Days of Radio - - - - 126  
President's Report - - - - 121, 122  
Joe Worcester's Long Distance Receiver (3 pages of 6) - - - - 123 - 125

"ODE TO AN HQ-180"

The HQ-180 is my receiver, I shall not want.  
It maketh me to DX with thousand foot beverages.  
It leadeth me to TAs and TPs.  
It restoreth my supremacy rating.  
It leadeth me in the paths of Aussies for its names sake.  
Yea, though I DX in the Valley of High Tension Lines,  
I shall fear no noise, for its shields and filters they confort me.  
It prepart a frequency check list before me in the presence of IRCAers.  
It annointest my wavetraps with spurious responses, my veries runneth over.  
Surely good CX and veries shall be with me all the days of my life,  
And I shall dwell in the Den of DX forever.

By an anonymous contributor.

**central dx forum** 6617 Maryland  
Hammond, IN 46323

Richard Dale-RR #2 Box 218-Buffalo, MO 65622

Hi gang. Another DX season is once again beginning to bless our humble receivers. One new project here is to build my own receiver. It will have direct readout, either mechanical or electrical digits, and a special dial marker for each of the 107 domestic channels. Also included will be many RF amplifiers and RF stages, along with the usual AF amp. A bandspread on the unit will make each 10kHz chunk electrically almost 3 to 5 inches long. This should help separate the TAs, hi. A notch filter should help cut out annoying hets up to 1 khz away or less (I hope). Why not just go out and buy an HQ-180? Well, I hope to set up a repair shop in this area. There is only one now, and he monopolizes on that with high prices. After I pass the various Radio-telephone licenses, I may be able to get a job at a local AM or FM station, as they are in need sometimes. By-the-by, if I get a GE job, I will verify all correct reports, not just some of them like other stations, hi. Remember Radio Nibi-Nibi? I never did get a verie from them, hi. 73

David R. Ball-62 Lexfield Ave.-Downsview, ON M3M 1M5

Greetings from the Land of Strikes! Here in Canada we are currently in the throes of a nationwide postal strike, so don't hold your breath for any Canadian veries you're awaiting. Here in metro Toronto, as of this morning, secondary school teachers are also on strike, endangering my chances of getting into the U. of Toronto next year...where will it all end? DX has been minimal here in the last couple of weeks, although back in Oct. I did have the thrill of logging my first 2 TAs, Nice-1554 & TWR-1466. What with this teacher's strike, I should have a lot more time for DX, hi. I was hoping to be quite active in CPC this year as well, another activity that's been curtailed by the strike. By the way, this forum is reaching you courtesy of a friend on a business trip in the States. (DXR material deleted here-jz) No veries to report, hi. 73, will report again whenever possible.

Brian L. Cartwright-Leila St.-Johnstown, PA 15905

Condition of conditions have really been great here the last week and a half. At 1851 ELT 10/3 an aurora started taking effect, and produced an an IA dominated MM, although nothing real spectacular. It slacked off slightly on Tuesday, but was the strongest on 10/5. 760 and 770 sounded like GYs with all the LAs jamming them up. Almost impossible to pick out stations. At 2242, I did hear a "R. Mar" ID slip thru on 760. I recognized it and didn't think much of it until I looked it up later and found it was in Lima. Same evening I heard Barbados for the first time, those two making 29 countries heard. The next two days were almost back to normal, but started picking up again on Saturday, and then a super MM 10/10 with almost 75% of the channels having something in SS. I netted 2 new HJs and YVs, 2 in IN and SC, and one from Cuba. This brings the heard totals up to 1705/47/10/29. Haven't tried any SWLing, but the cx have also brought in 6 newies and 2 new states on TV. That's about all for this week, so see you soon. 73

Michael Hogan-4811 Euclid Ave.-E. Chicago, IN 46312

I'm happy to see that the IRCA Foreign Log Volume 4 is in the making. The first three volumes have been of great assistance to me when DX'ing the foreign broadcast waves. This publication comes highly recommended from this DX'er so be sure to purchase a copy. DX for the past couple of weeks here has been nil, the band conditions are great, but I have had little time to DX. It also appears that propogation favorable to western stations are present in this part of the U.S. 73's and good DX'ing to all.

Thomas H. White - 56-6-2 Lambeth - Charlottesville, VA 22903

Hi all. It has been a long time since my last report, so here's a reintro. I'm 19, and in my second year here at the University of Virginia. A local carrier current station, WHGC (ex-WGC) has been getting out too far lately, so here's some information in case you hear it. The freq. ranges between 1600 and 1610 khz, and the format is Gospel mx. Reports can be sent to Mr. John Brown, the G.M. at 704 12th St. NW, Charlottesville, VA 22903, but they must include a PPC if you want your report verified. Mr. Brown has a full time job in addition to his voluntary work at WHGC, so he has little time left to verify reports. By the way, the power at WHGC is only 100 milliwatts, so they've been pretty perplexed as to why they're getting out so far. I spent much of this past summer at the Library of Congress in Washington, D.C. reading old radio magazines about the early days of radio. They have a large collection there, but the one thing that I could not find were Radio Service Bulletins, put out by the Department of Commerce and later by the FRC. If anyone knows a library or person with access to these invaluable documents please let me know, as I'm sure they have tremendous amounts of information on the early government regulations that I've been unable to get through other sources. 73

Scott Mentzer-Rt. #3-Tylertown, MS 39667

Greetings. Well, I just finished sending out two reports (WKCY and QGBA) and since the typewriter is still warmed up, I figured I might as well drop a line. (I'd better contribute now, because we have our first ball game this coming Tuesday night.) Even though CX haven't been that great recently around here, the "ol' Gambling Man" has been fairly lucky. In addition to the two catches mentioned above, others include WSNW, WAGL, and WEAG - all on DX tests (WSNW has veried already)- as well as KAMO and WTJS. Latest veries: KWRT, KHAD, WDOC, and KGBS (thanks for the info, Albert). While I have another CPC list to submit to Rob, I've decided to hold off for just a while. Out of the fourteen contacts made, I've received exactly one "no" and two "no-shows". (Even though both of the "no-shows" were from Louisiana, they were close enough to here that a trained ape with a crystal set could have picked them up during the middle of a high-noon earthquake!) As for the rest, it's a bit discouraging when one includes a postcard and still receives no reply. At least with some obscenity written under the "Additional Comments" section, you would know that you had provoked some response. I think I'll just wait to see what comes back, before "casting any more bread upon the waters". So much for gripes. Until next time.....

Gregg Allinson-919 N. Kerr Ave.-Wilmington, NC 28401

Dear Friends, the season is definitely progressing great. I'm getting on the average of 4 new stns. every time I turn the dial. Needless to say, my log is growing by leaps and bounds and I'll probably have to put a new one together soon. It seems that Pa. & Ga. stations are getting in best of all. Don't know why. Latest QSL's include: WTTI v/1 for ET; WGUN v/1, a second from WOKJ v/c and a v/c from WBAM along with a pencil, letter, survey, coverage map and assorted other goodies. They make my 25th domestic capital city. Now I guess I go for 30. At WMFD I've gone back to morning drive (6-9AM) so late night DX is gone but early morning is a possibility. Finally, I've compiled a list of stations carrying the Jepko Nitecap show, hopefully HQ will print it soon or already done so by the time this sees light. Three changes in list include two new stations: 790-KGMI-Bellingham, Wash. & 1510-WRAN-Dover, N.J., and although KPRO-Riverside (per list) is to carry it as well, as of today (Nov. 18) they are not due to several problems, which I understand have to do with Mutual contract. Will gladly help anyone needing it on any of the Carolina stations. Gooooooooooooo DX!

Rob Keeney - 22-12 Stouffer Pl. - Lawrence, KS  
66044

Thanks to member John Tull, my rx is working better than ever after he re-aligned it for me last weekend. Plans for next summer include Louisville w/Zank and Dabelstein and a trip or two to Nebraska. It seems strange that I'd be talking about summer already, but it's been 65 degrees plus the past week and it sounds like that summer QRN is back! None of the DX TESTS of 11/17 were heard. WNDE-1260 was heard but it hardly was a DX TEST. V/q from KMPC has been the only verie to make it to my mailbox in quite a while. There's still time to join the CPC and set up some late season (March-April) tests. Write for more info. The MFJ SSB Audio Filter is being tested on the BCB and a review should be coming soon. I think switching DXM to a magazine style would look much better and just might attract some new members. The looseleaf format is easier to file, but we ought to be thinking of getting new members with attractive bulletins, etc. Enuf until next week. 73's.

Charley Keleher-3924 Sleepy Hollow-Ft. Wayne, IN  
46804

From a DXer's viewpoint, the broadcasting of audio tones in excess of 5 khz can only be harmful to the hobby. Even considering the needs of the listeners only, there are about 10 reasons why high-fidelity is better left to FM. Some stations, even with a 5 khz cutoff, can produce audio which is messed up splendidly, but it is not always the CE's fault. It often happens that someone with more clout than the CE will insist on a cheapy modification, which hurts more than it helps. The fact that the station cannot afford the time or money for a thorough engineering job does not help matters either. Music can sound good without exceeding 5 khz, but more barriers exist now. Compared to some consoles of the 30's and 40's the average pocket transistor or table radio of today has all the fidelity of a baby's rattle. Oh well, when stations only broadcast such things as R&R (ranting and racketmaking), or C&W (cater-wauling and wailing), most folks don't really care about the fidelity anyway. Sorry if that doesn't have much to do with DX. Rich Mayhew and Gregg Allinson deserve credit for their fine analysis of club problems. Anything I agree with 90% or more, is a fine analysis, hi. Well, maybe next time I'll talk about DX. 73 fer now-Charley

John Zondlo-6617 Maryland-Hammond, IN 46323

Greetings. Surprising to see that JCK agrees with something, even as much as 90%, hi. Recent veries in from WVAM and WBAM. I've got an unusual problem here- my 4 year old TRF is developing images. For example, I've heard WWCA 1270 on 1160, WJOB 1230 on 1550, and WIND 560 on 1560. Thinking it was about time anyway to get a new receiver, I picked up one of the new TRFs. On that receiver, I heard WLS 890 on 780 (WBEM off), WWCA on 1160 along with WCFL 1000, and WIND on 1560. Something wierd is going on here.....I'm in the market for a good communications receiver, preferably a Hammarlund. Good to talk to Rob Keeney the other day. He's doing a fine job with the CPC, and he needs your help to keep it going. Rumor has it that Glenn Hauser is moving up this way (Urbana, IL). There may be a get-together in this area around Christmas....plans are still in the works. I'm encouraged by the fine support for the DXFs and DXRs this season...but it could be far better. Let's hear from some of you who haven't reported for quite a while. 73.....

DEADLINES

EVERY

FRIDAY

**western!**  
**dx forum!**

EDITOR: RICK HEALD

534 WELDON AVENUE  
OAKLAND, CA. 94610

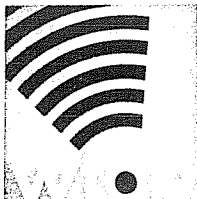
ERIC C. RITTENHOUSE-GRIFFITHS HALL #106-2650 HASTE  
ST-BERKELEY, CA. 94720

Hello all. No DX since the last Forum but thought I'd kick in my 2¢ worth on a couple of important issues facing the club. First, I agree w/ASL on the superiority of the looseleaf format to a magazine format. The looseleaf is much better looking and easier to bind than the magazine. I've got piles of DXMs around my room because I have yet to find a way to keep them together. The two column format is much more flexible than one and it's much easier to follow a long roundup section or article when it's spread o/a couple of pages, rather than four. Talk of merger w/NRC is also starting to pop up again. This, is a copout, it seems to me. Instead of just rolling over and dying we should do all we can to make IRCA an attractive alternative to NRC. I find DXM superior to DXN in almost all respects and I think we should strive to keep it that way. If people are joining NRC rather than IRCA we should find out why, rather than just accepting it. At the time I joined, I compared the two clubs and chose IRCA, the one for me, on the basis of bulletin format and information, and more importantly, government. It's foolish to think that IRCAs democratic political system would be adopted in the case of a merger. W/NRCs great superiority in numbers such a move would be less of a case of merger and more one the case of absorption of IRCA w/NRC, its government, and format the surviving entity. I think that there is plenty of room for two clubs in the BCB DX hobby. If I dropped my membership in either IRCA or NRC I would feel that I was losing out on a lot of information as a lot of stuff which is in one bulletin isn't in the other. I think the mere existence of two clubs increases the total amount of information disseminated. I would guess that a merger would result in one bulletin no larger than either of the club's previously published and w/less information than in the two bulletins. If I had only been in NRC I might have lost interest in the hobby some time ago. I feel that I "belong" in IRCA while I'm just another member of NRC. I think we should fight for IRCA (fight song on order) and if the present leadership won't do it, we should elect some new leaders. I've said enuf for 3 DXFs so I'll descend from the Sather Gate Scapbox and say 73 and good DX de ECR and save the IRCA!!!! (Right on, Eric!!-RtH)

BILL HARANG-811 NEVADA AVE-SAN JOSE, CA. 95125  
Ph: (408) 292-8198

As strange as it may seem to some, most AM stns have as good fidelity as most FM (With the minor exception of 15 time + the distortion, of course-RtH) (with the exception of FM having stereo, of course). This may seem strange to some, but it's true. The facts are that most AM radios have a frequency response of about 50 cycles to 15kc. Both KEX 1190 and KMPC 710 have a frequency response up to 15 kc. If the KLOK engineer gave me correct information, KLOK goes up to 20 kc. (Impossible on AM, KLOK is lucky to have 10 kc, if that-RtH) KMBY uses a filter to cut audio above 9 kc due to the inability of practically all radios to receive it, and to keep sidebands clean. KDWN 720 LAS VEGAS, NV according to a reliable source has the cleanest sounding transmission in Las Vegas. 7½ min. before our 11/12 DXer Report prgm began, KDWN DJ Harvey Allen described our program as a "very interesting public service". Immediately after our 10/15/75 prgm was over, Harvey described our program as "very interesting and informative". On out 9/24 prgm, Jack London mentioned that he received a reception report from Bret Hanavan of Chula Vista, CA. On out 10/22 prgm, Jack London mentioned that he received a reception report from Thomas H. Miller of Travis AFB. Tom has logged 35 states on BCB, and said in his letter that he was glad KDWN is friendly to DXers. 73.

990 Kc.



Radio Lancaster

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CHARLES A. WOLFF-4911 PROCTOR RD-CASTRO VALLEY, CA 94546

I guess by now it's been announced semi-officially that the '76 IRCA Convention Bid has moved to Northern California. Don Erickson explained the reasons in his recent Forum, so I won't go into that. But we are going to need plenty of support to make this thing work, and anybody who can get involved, even by donating stamps or doing some typing, we can use you. Nut much DX to report; a few new California stations but nothing great. The verie situation remains bleak, w/no new ones in the past month or so. I will be off work MM Dec 8, so, barring a power failure, expect a DX-filled Forum after that MM. In the meantime, I'm up to 298 TDH, 35 states, about 45% veried. Bill Harang, or others into radio station history, how 'bout some info on KWUN 1480 in Concord? Also, does anyone have a HQ160 they'd like to loan me for 12/8, hi? (Rittenhouse, are you paying attention?-RtH) CU when I start hearing some stuff. SAN FRANCISCO, CALIFORNIA IN '76!!!!

ALBERT S. LOBEL-247 N 1st ST #27-EL CAJON, CA. 92021 (714) 440-2544 YOUR AD-VISOR EDITOR

Well, here I am again; this time is a record for me. Hope to appear in these pages many more time during the year. (Looking forward to it-RtH). The controversy o/the IRCA/NRC merger seems to still go on. As I have stated before, I'm against it. I'm a member of both clubs! Both are great DX clubs! For those of you who feel that NRCs booklet form is better than IRCAs loose-leaf form, I have some great news; I've found a way to convert IRCA loose-leaf form to the NRC booklet form! Take out the staples, which u must do anyway to read the Bulletin, and fold the pages back the other way so the first page is out. Next staple to top left corner and P-R-E-S-T-O, you have a booklet instead of a loose-leaf form. I dont have any particular opinions about which is better the loose-leaf or booklet. It doesn't matter to me one way or the other; I'll vote w/the majority should any change be initiated in either club's bulletins. Well, 'til next time, that's it. 73 and good DX!!

BRETT HANAVAN-845 FIRST AVE-CHULA VISTA, CA. 92011

Last Summer, my family and I traveled by car from Chula Vista to Pineville, MO. Some interesting observations on radio stns were made on the way. Most San Diego stns faded in the Laguna Mtns, some 50 mi E of San Diego. I first started DXing seriously at the base of the Laguna's, in the Imperial Valley. All of the Mexicali stns were logged. XETRA, XEPRS, & XEMO (all Tijuana) were logged. In Yuma, KBLU 560 XR was seen. Towers located on I-8 about 3 mi W of Yuma in Winterhaven, AZ.. There were 2 towers about 250' in hght. In the desert E of Yuma, L.A. stns KMPC, KBRT, & KFI were heard. No radio stns between Yuma and Phoenix, hardly any cities too, hi! We headed N. from Phoenix toward Flagstaff. The night was spent in Winslow, about 58 mi E of Flagstaff. The SPR-4 and Loop were set up. Best catch was KWOW 1600 Pomona, CA, 500 watts. The next day on the road, I DXed most of the time. Traveling through Gallup, NM KYVA was logged w/some sort of Indian language. Presumed to be Navajo. (Yes-RtH). In Santa Rosa, NM, KSYX was hrd giving ads for a place in Tucumcari, about 50 mi E. KSYX D1 1000 could barely be hrd in Tucumcari. The night was spent in Amarillo. Here too I set up the SPR-4 and loop, which was a dumb thing to do because late that evening, while DXing, a thunderstorm moved in. Suddenly a lightning bolt touched ground somewhere near the motel, and knocked out the FETs in my loop. Even w/the pre-amp blown out, I still managed to log 280 stns in Pineville, MO. 73.

RICK HEALD-534 WELDON AVENUE-OAKLAND, CA. 94610

Howdy all! Tnx for fine support this past week. My only goodie, last weekend, and will be last chance also, KTKR 1310 Taft, only trying for that one since '63. But thanks to the new "Wedge", eliminated enuf of KDIA to hear the KTKR s/off, both Sat and Sun @ 0501 PST. New QTH will be within eyeball distance of KDIA (4 mi or so). The usual TP rolling on in. TAs gone for now, last MM 11/17 noticed KABC off, also KWJJ off (yes, I did DX a MM), Japan like local on 700 @ 0030 PST, that would coincide

w/local Sunset according to Sunset maps. I see that NRC HQ (Russ Edmonds) has published a full page editorial re merger talks, urging NRCers to send in their comments. That should prove entertaining. Re local radio, FCC was in town last Thur, Nov 20, on Ch 2, and invited calls. Yes, I talked to the FCC, and would you believe, the Commissioner and his assistant, Mr. Hooks, could not answer a caller's question why KIBE had to s/off at LSS, and that I HAD TO EXPLAIN? They had a panel of 8 "experts", all of whom appeared to be complete incompetants. They were very evasive to my questions (on tape, for those who wish copies), and were evasive to nearly all callers. They seemed to be completely involved w/TV, totally uninterested in radio, and favorable to, of all things, CB. I questioned them re 100% duplication of KYA AM/FM, was told that I should make a complaint in writing, and when asked why they couldn't tell from their Livermore Monitoring station, they really got pushed out of shape, like we weren't suppose to know about Livermore. And Commissioner Wiley is an attorney, w/absolutely no knowledge of radio and/or TV. No wonder things have gone from bad to worse. All for now. CU in 7, and in SAN FRANCISCO IN '76. 73

\*\*\*\*\*  
**AD-VISOR**  
247 N. FIRST STREET, APT. 27  
EL CAJON, CA USA 92021  
TELEPHONE: (714) 440 - 2544  
EDITOR: ALBERT S. LOBEL/ DEADLINES ARE TUESDAY NIGHTS.  
\*\*\*\*\*

**PLEASE NOTE!**

**SORRY!** I FORGOT TO MENTION LAST TIME THAT THE DEADLINE FOR THIS ISSUE WAS MOVED BACK ONE DAY DUE TO THE HEADQUARTERS DEADLINE BEING A DAY EARLIER! I WON'T FORGET TO WISH YOU ALL A HAPPY THANKSGIVING THOUGH --- H A P P Y T H A N K S - G I V I N G !  
**NEXT 3 DEADLINES: 3 DEC, 10 DEC, 15 DEC.**

**SALE!**

Index to DXM Vol. 12 (as compiled by Fred McClelland) for 25¢ and a legal size SASE.  
IRCA Headquarters, P.O. Box 21462, Seattle WA 98111.  
IRCA HQ has lots of Foreign Log Vol. 2's and 3's for only \$2.75 and \$3.50, respectively, or both for \$5.25.  
IRCA Headquarters, P.O. Box 21462, Seattle WA 98111.  
IRCA HQ also has only 3 Vol. 1's of the Foreign Log for only \$2.00, or all three volumes for only \$6.75. Hurry before they run out!  
IRCA Headquarters, P.O. Box 21462, Seattle WA 98111.  
Red and blue IRCA Stationery is still available for only \$2.00 for 70 sheets, or \$2.75 for 100 sheets, postpaid.  
IRCA Headquarters, P.O. Box 21462, Seattle WA 98111.  
IRCA Rubber stamps with the IRCA Emblem for only \$3.00, postpaid.  
IRCA Headquarters, P.O. Box 21462, Seattle WA 98111.

**FREE**

Will record my locals for someone who will record locals of their own for me on cassette tapes.  
Gary Parton, P.O. Box 7495, Burbank CA 91510.

Copy of the recent "ABC Movie of the Week", "The Night That Panicked America". This is the recreation of the 1938 Radio broadcast of "War of the Worlds". I also have a very good copy of "War of the Worlds". Send 2 C-60 cassettes for "The Night That Panicked America" and/or 1 C-60 cassette for "War of the Worlds". DO NOT send larger cassettes; my recorder will jam anything larger than a C-60! Include return postage!  
Albert S. Lobel, 247 N. First Street Apt. 27 El Cajon CA 92021.

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DX

Worldwide



BRUCE PORTZER, Editor

All times GMT/UTC Deadline Saturdays

7021 Sand Point Way NE, #215 - Seattle, WA 98115 - 206-522-2521

ATLANTIC DX ROUNDUP

- 656 SPANISH SAHARA, El Aioun, fair sig 11/2 0003-0010 w/man in SS; alone on channel. Had hoped to hear lots of activity from this one during the invasion period but cx were generally pretty poor during that time. Freq meas'd as 655.9972. (Nelson,MA)
719 PORTUGAL, Norte I outstanding and alone on channel 2354-0000 11/2 on meas'd 718.9881. Man speaking in PP; h long and one short pips on the hour. No sign of Tunis.
737 UNID AFRICAN/SPAIN, A very intriguing African being noted here. First observed 11/5 at 21h6 as a 2h Hz SAH against Barcelona, which was fair to poor at the time; no audio from the 2nd stn which s/off'ed or faded around 2200. Next noted alone on channel fading in 21h0 11/8; freq meas'd as 736.9759. Signal rose steadily & peaked around 2205 w/man speaking w/low pitched voice in unid lang; noise level then began to rise & carrier lost to noise by 2210. Noted also fadein 2137 11/11 & 2155 11/12. Never noted past about 2220 & consistently noted when Barcelona knocked out by post-auroral absorption. The mean DF bearing for h9 measurements taken over h nights is 100.20+2.10. I strongly suspect this is Lourenco Marques, whose bearing is 101.30 & who at least used to s/off the B pgm on this channel at 2225. Will keep trying for a good SW //. If this does turn out to be Mozambique it will be the first time I have ever noted an East African at sunset; all previous receptions of Mozambique, Tanzania, etc., have been later in the evening around their s/on times. (Nelson, last 2)
746 UPPER VOLTA, Ouagadougou, fair sig, Dakar-type native mx 2339 11/2; freq meas'd as 746.0132 w/slight drift.
764 SENEGAL/SWITZERLAND, mixtures of audios from Dakar & Sottens 2200-2210 11/1; Dakar generally on top. Sottens meas'd 763.9998 & Dakar 30-35 Hz higher & drifting rapidly. Dakar meas'd 764.2865 on 11/2 so still has freq problems. (Nelson,MA, last two items)
773 SPAIN, Caceres, RNE powerful & alone on channel 11/2 2328-2330; bouncy mx & man ancr in SS. (Nelson,MA)
773 MOROCCO. The new WRTVH now in press lists a new 600 kw stn supposed to be on the air at Sidi-Bennour. I have been checking this channel daily for some weeks and haven't noted a trace of this one so I don't think he's on the air yet. (Nelson,MA)
827 MOROCCO, Oudja very strong w/man in AA 2300-2310 11/2 w/ments of "El Aioun." Freq meas'd as 827.0079. (Nelson)
836 UNID. (Get ready for the epic. bp) One TA here takes to the air at 0600, taped 2 consecutive mornings, 10/24 and 10/25. On 10/24, a 3-note IS began at 0558:30 & was repeated many times up to 0600:25 when a female ancr began but she was unreadable, then some mx & a male voice hrd 0602:45 as the signal fades out. 10/25 stn was in a fade across the hour but at 0603 sig comes up & you have the male & female alternating as in nrcast for 3 mins, then fades again. Second days taping takes up practically at the place where the first day's taping left off and I have no doubt it was the same stn both days. I thought there was a SS flavor in the gal's voice on the 2nd day but can't be certain. Wonder if this isn't the farthest west that a TA on this freq has been reported. (Martin,CO) --- Regarding Martin's Unid TA's: I've listened to his tapes carefully & the cut made 10/25 is most definitely SS; after a bit of filtering I found a ment of "...Las Palmas, Islas Canarias ..." by the YL altho it appeared to be in the context of mx rather than an ID. The latest EBU data gives the following choices on this channel: (a) EFEL7, Valencia, 5 kw, which is a REM outlet and sked s/on is 0700; (b) RNE, Huelva, 5 kw, which carries the RNE R. Peninsular pgm & is sked s/on 0600; and (c) EAK35, Las Palmas, 10 kw, sked s/on 0600 (They are not on 827). I don't recognize the IS as being for RNE but a check of the log shows I haven't noted a R. Peninsular outlet at s/on for about a year & RNE changes IS frequently. One can get some useful info from the fade times, however. For the 3 poss. stns, we have calculated the effective ionospheric dawn for the paths to Denver on each of the nights of reception:
10/22 10/23 10/24 10/25
Huelva 0645 0546 0647 0648
Valencia 0621 0622 0623 0625
Las Palmas 0712 0712 0713 0714
On these paths the dawn fade rate following the time

- 1205 FRANCE, Bordeaux I, 10/27 0648 w/YL in FF. Carrier had been noted earlier. Lots of WOAI slop. (Keeney,KS)
1223 UNID carrier looping just barely S of Bordeaux 10/27 0555. It sure put a good het on WJAR. Prob Spain but no audio. (Keeney,KS)
1375 ST. PIERRE et MIQUELON, ORTF or whatever it is now, 10/27 0935 w/good steady signal. FF MoR & YL ancr. (Keeney,KS)
1466 MONACO, Monte Carlo, TWR w/xlnt sig 10/24 2300 w/ID "This is Monte Carlo. You're listening to Trans-World Radio. Central European time is midnight", then into EE rlge pgm. (Ball,ON)

PAN AMERICAN DX ROUNDUP

- 555 ST. KITTS, Best signal ever noted from ZIZ 0205-0300 s/off 11/5 during heavily auroral cx. Soul mx pgm w/man DJ who never gave an ID; s/off 0300 w/canned s/off message by YL. Even audible on portable rx. (Nelson,MA)
730 MEXICO, Mexico, DF, XEX 10/14 good 0520-0530 w/IDs as "La X", mx, ads. (Ball,ON)
730 TRINIDAD, Port of Spain, R. Trinidad sig fair & nearly alone 2356 11/16 w/cricket scores. Rarely hrd here. Oddly, on other freqs, e.g. 900, no sign of other (Caribbean.bp) stns that might be expected. (Foxworth,NY)
740 MONISERRAT, "R. Antilles" (on-TEE) ID 11/16 0952 in FF. Strong & alone on channel w/LSCA-2. First USA reception of this one. (Schatz,FL)
750 VENEZUELA, Caracas, YVKS 0822 11/17 w/SS version of US rr hit "Feelings", & "R. Caracas, R. Caracas/SID. (Korn,CA) / (Schatz,FL)
800 EL SALVADOR, San Salvador, IV Panamericana ID'ed during pgm of Mexican mx 11/11 1050. Calls not hrd.
830 HONDURAS, Tegucigalpa, "R. Moderna, la super, la gigante (echo)" 11/11 1100 s/on. Not even listed by FBIS, but found in old NRC LA log. (Schatz,FL)
830 MEXICO, Mexico, DF, XELA noted w/call letter ID & chimes 0231 11/10. (Pejza,CA)
834 BELIZE, R. Belize w/s/on 1200 11/14; after voice anmt some sort of anthem. Hets present; carriers on 833 & 835, but no audio; 835 presumed the CC. (Pejza)
854 PERU, Lima, OAX4H 11/3 0538 w/Andean mx & R. Nacional IDs. (Keeney,KS) --- 1006 11/17 w/Indian-type mx, ID, & "Aqui está este flor de los Andes". (Korn,CA)
860 DOMINICAN REPUBLIC, Santo Domingo, R. Clarin hrd here 1022-1036 11/16 bragging about their pwr: "R. Clarin, la de mayor potencia en este pais..." Ann'd 50 kw. IDs frequently & likes to use an IS which remotely resembles a ray gun from 1950's sci-fi movies. Also hrd 0928 11/17. Tape sent. (Korn,CA)
860 PANAMA, R. Reforma, Chitré logged atop the channel 11/5 from 0935 s/on past 1010 & getting stronger. Meanwhile, R. Clarin has apparently ceased AN operations, altho, based on SW operations, the AN operation seems to be erratic recently. (Stanbury,ON)
880 CUBA, Pinar del Rio, CMAF in the clear 1037 11/16 w/"R. Progreso, Cadena Nacional" logo & lively jingle or mx. I believe they are the one hrd here most AMs w/soft KABL-type instrumental mx. (Korn,CA)
908 COLOMBIA, Cartagena, Emis. Fuentes badly detuned from nom. 920 kHz as on 11/14 on, leaving R. Popular dominant on the latter. (Schatz,FL)
930 MONSERRAT, "R. Antilles" SID in EE 11/16 1000. Quite weaker than 740! (Schatz,FL)
1010 MEXICO, Torreón, Coah., XEYK noted 11/14 1210 w/call ID & "R. Felicidad" slogan. Covered by OC at 1211 but still audible. Thought I hrd a "El Ritmo" at 1215. (Pejza,CA)
1085 HONDURAS stn here nightly sometimes as early as 2330, seems to be R. Choluteca listed by WRTVH75 as on 1280. But am not absolutely certain of ID. (Stanbury,ON) (This is R. Aeropuerto, listed on 1130, Stan, per 11/8 DXW; this and other exciting information will be discovered once the Canadian P.O. strike is over and you start getting bulletins again, hi. bp)
1090 VENEZUELA, Caracas, "Exitos 1090 - 1090 kilocyclos" ID by YL 11/16 1007. Listed YV5Z w/10 kw. Native music. (Schatz,FL)

1100 ANTIGUA, St. Johns 10/27 0905 really blasting in again since DST went off. Gospel mx w/dedications, one to the staff of R. Antilles. 3WE OC tried to bury them but couldn't. (Keeney,KS)

1130 COLOMBIA, Barranquilla, "R Rio-Mar" noted atop freq 2340 11/11. (Stanbury,ON)

1150 VENEZUELA, Punto Fijo, YVMV 11/10 0620 w/Ondas del Caribe ID. (Keeney,KS)

1200 VENEZUELA, Caracas, Radiotiempo in well o/WOAI 10/11 0645-0700 w/light mx & numerous "Radiotiempo" TCS, ads mentioning Venezuela & Caracas. (Ball,ON)

1265 ST. KITTS, Basseterre, R. Paradise, rlgS EF 11/10 0005-0215. 0030 ID "You are listening to R. Paradise. We are BCing from St. Kitts in the West Indies 18 hrs daily. The time is 9:31". IDs on 1/2 hr as R. Paradise very good, almost local quality. (Curtis,VT)

1270 COLOMBIA, Barranquilla, R. Miramar logged fighting it out w/Cuban Reloj Mac. 2400 11/11. (Stanbury,ON)

1505 ANGUILLA, R. Anguilla finally logged for the first time 2332-2350 11/5 during very auroral cx. Reggae records dedicated to listeners on Anguilla & St. Kitts; woman ancr w/soft voice & thick Caribbean accent. Added to tape library for country #131. Never could get this one w/FET AA loop because they were too close to being colinear w/local WJEX-1510; new loop has enough more gain to make the difference though. (Nelson,MA)

PACIFIC DX ROUNDUP

625 N. KOREA, mostly a carrier, some audio, here 0926 11/17. (Portzer,WA)

630 AUSTRALIA, Townsville, hQN hrd while looking for WJDB DX test. First noted 11/10 w/opera mx fading in & out & looping NE/SW at 0954. At 0957, an amrt about opera & ment of ABC Radio. 1000 had 6 pips & YL w/mx. (Bytheway,WA) (And to think I didn't bother to DX that AM because I thought cx were too crappy. Grrrrrrrr! Kill! bp)

647 RSPSR, in well thru KFT slop w/YL talking 100h 11/17, mx 1016, Kremlin chimes 1030. (Bytheway,WA)

650 HAWAII, Honolulu, KORL 11/10 0744 w/rr. This one has been in every MM since mid-Sept. Especially good this time (yawn!). (Keeney,KS)

655 N. KOREA, Pyongyang, 1225 11/17 apparently //816 & 874. All 3 still in/out 1250 w/man talking, long pauses. (Erickson,CA) --- suspect Pyongyang here 1035 11/17 w/martial mx & terse Oriental female talk until KNBR decided to play a record which pushed their sidebands out to 650 on my rig; no more oriental. (Korn,CA)

700 ALASKA, Anchorage, KBYR fair 0841 11/17 w/Alaska TC, IRC PSA, & football roundup. (Bytheway,WA)

705 S. KOREA, Seoul noted here MM 11/17. Carrier & some audio first noted around 0850. Pips hrd 0900, more audio noted later w/fair signal. (Portzer,WA) --- YL jabbering 0846 11/17 in/out about every 5 mins or so. 0933 hrd w/man & woman talking. (Bytheway,WA)

750 JAPAN, Sapporo, JOIB w/EE lessons briefly o/WSB 1028 11/3. (Korn,CA)

816 N. KOREA, Kaesong 1145-1250 //655 & 874. Ix & talking MM 11/17. (Erickson,CA)

844 GILBERT ISLANDS, Tarawa. This is correct name, not GEE I. (The Ellice Islands are now Tuvalu and capital is Funafuti. The 580 stns now count as separate country from 844). 844 was hrd w/fair carrier on peaks, trace of audio 0829 & 0836 11/17. Freq & DF checked OK. Quite noticeable QSB. Should've been hrd in east by others. Cx were good w/CBK-540, CFRM-1260, etc. all in well. (Foxworth,NY) --- 11/10 0800 presumed the very strong carrier & weak audio here. They've put a S-7 carrier in here several times this season. (Keeney,KS) --- hrd 0937-1005 s/off 11/17. Pgm was a discussion of cl mx w/short excerpts of same. S/off sounded like "...this is \_\_\_ for R. Tarawa saying good-bye for now in a few minutes until we meet again.", then native language, recording of native mx, inst GSO, h0 sec TT & finally 30 secs of OC. Tape sent. Question: Does the horrendous het level here in relation to Tarawa's audio indicate that Tarawa undermodulates? If so, they would be a real powerhouse w/full modulation. (Korn,CA) (Judging by the "good carrier, weak audio" rpts I get on them, and on my own monitoring of them thru KTAC slop, I'd say they are a bit undermodulated. bp)

874 N. KOREA, Wonsan; here it is, RJS; quite strong and // 655/816 1212-1250 11/17. (Erickson,CA)

1130 HAWAII, Kailua, KLEI, 11/10 0808 w/light rr & a K-Lai (Lay) promo. Spot for 1st Hawaiian Bank at 0811. "This is K-L-E-I, Kailua" ID 0817. This per tip from Mittler. Hrd most of the AM u/several OCS. The aurora wiped out pests WCAR & CKWX. (Keeney,KS)

1178 OKINAWA, Okuma, VOA. Be advised that this stn is not in Naha, nor could it be. Okuma is 55 mi NE of Naha, on the northern tip of Okinawa. KSBU-1360 (Far East BCing Co.) was its immediate neighbor, according to FEBC personnel, (until reversion of Okinawa to Japan in 1972, forcing closedown of KSBU) and in fact some VOA personnel aided (gratis) in KSBU's construction. (Taylor,IN)

1475 SABAH, Sandakan. Be advised this stn is not in Kota Kinabalu and could not be as K-K is on the opposite side of Mt. Kinabalu from the target area, Philippines. (Taylor,IN) (Then 1178 & 1475 are listed incorrectly in WRTVH. bp)

INTERNATIONAL DOMESTIC ROUNDUP

1010 CA, Delano, KCHJ w/ranchero mx & SS amrts and spots FM 11/17 1313. (Pejza,CA)

1140 FL, Miami, WJBA logged atop channel 2222-2230 11/3 w/SS mx & Bank ads. First time hrd since call change a few years ago. (Stanbury,ON)

CONDITIONS OF CONDITIONS

Gene Martin - "As of 11/12 it still shapes up as a strange dx season here; very good in some respects but marked by puzzling omissions; too. For example, Portugal-655 was quite regular during the periods of TA reception in Sept & Oct while Portugal on 755 was never hrd at all. In previous years, when you hrd one, you hrd the other. The only Spanish stn to make it to Denver was the one at 683. Thule on MM 10/27 became my 62nd country as Turkey-1016 was #61 on 9/26 & I have hrd a couple of unid TAs on 746 & 836, both believed in the African area. Meanwhile sigs from N. Europe haven't been hrd at all except for 10/26&27 when BBC-1214 & France-1205 checked in. Also, I have thought that LA reception was unusually poor this fall. Haven't been able to hear R. Globo-1180 altho one & two years ago they were there virtually every night after 0700. (Globo has been hrd here a half dozen times since last spring and was never hrd at all before last March. bp) During Nov, most nights hav' been a quite auroral flavor to them altho the A-index hasn't been that high for the most part. I have found extreme weakness of Eastern & Northern sigs when the A-index was no more than 6 to 10."

Bob Foxworth - "Cx generally below average this past week. A-indices finally down to 2 or so but still no meaningful TA activity."

Father Jack Pejza - "TPs have dropped off from their xInt quality of a couple weeks ago. 11/17 China-1040, N. Korea-655, Japan-830, and presumed S.Korea-840 were in strong, but nothing else noted."

Rob Keeney - "There haven't been any regular TAs for me since the end of Sept but the Pacific is usually coming in quite well. MM 11/10 was as auroral as I've ever noticed."

Paul Mount - "Cx were auroral 11/8 around 0100-0400 w/HJHJ-600 blasting in; also Colombia on 810/820 but weaker than 600. 11/3 must have been auroral since Cuban chimes were hrd u/WCBS or WFL at 0500 on a clock radio. 11/13 was extremely auroral, not being able to get WQMO-1190 or WQAR-1220. Many IAs, including HIR-860, HJCY-810, HIJB-830, noted on car rx."

CONTRIBUTORS

As Gene Martin said, this is a strange season. As further evidence, even Don Erickson is DXing..... A tip of the hat this time to.....

David Ball - 62 Lexfield Ave. - Downsview, ON M3M 1M5  
DXL50A, SM-2

Phil Bytheway - 6635 57th Ave. NE - Seattle,WA 98115  
HQ-150, SM-1

Robert Curtis - 17 Cobbleview Drive - Colchester, VT 05446  
Hammarlund SP-600, Longwire

Don Erickson - 6059 Essex St. - Riverside, CA 92504  
Collins R-388 & Sanserini (Sic) loop

Bob Foxworth - Box 2111 - New York, NY 10001  
HQ-150, SM-2, Longwire, SB-620

Rob Keeney - 22-12 Stauffer Pl. - Lawrence, KS 66044  
HQ-180, SM-2

Jim Korn - 969 Burnett #4 - San Francisco, CA 94131  
Fisher 90-T tuner, h ft box loop

Gene Martin - 3303 E. Evans Ave. - Denver,CO 80210  
HQ-180, box loop

Paul Mount - Teaneck, NJ - Panasonic R-1551, Rambler car rx

Gordon Nelson - 48 Hardy Ave. - Watertown, MA 02172  
R390/URR, R392/URR, HQ-180A, LEMDA ferrite loop, et al

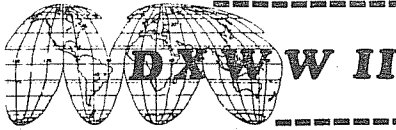
Father Jack Pejza - 212 S. Carpenter Rd. - Modesto, CA 95351  
Drake SPR-h, Sanserino loop

Bruce Portzer - HQ-180A, SM-2

Ron Schatz - Box 59284 AMF - Miami, FL 33159  
R-388/URR, ISCA-2, et al

C.M. Stanbury II - Box 218 - Crystal Beach, ON L0S 1B0  
Hammarlund HQ-200

Charles Taylor - 939 Eastern Ave. - Indianapolis, IN 46201



CHARLES A. TAYLOR, Editor

939 EASTERN AVE.

INDIANAPOLIS, IN 46201

No. 36, typed 16 November 1975. Phone: 317-638-4166 2330 to 0300Z, weekdays; 1300 to 0300Z, weekends, prepaid only please.

Jim Pogue, editor of CDXR, says he very much enjoyed reading Denzil Baker's IDXF report of two numbers ago. We encourage all non-NA IRGAers to report similarly.

Now, we present news from the world of DX:

ANGOLA (SCDX) Aircraft bombed Emissora Oficial de Angola's transmitter site 10/10, which returned to the air a short time later but with reduced number of transmitters, viz. 701 and 1367 kHz. English and French programmes are dropped. Station is using facilities of former R. Clube de Angola and R. Ecclesia (Gerald W. Arrington, Selma, CA, U.S.A.).

BOLIVIA (SCDX) Government has authorized reopening of R. Pio XIII in the mining district of Catavi, 350 km from La Paz. Station was closed for political reasons, and transmitters dismantled. (Horacio A. Nigro, Montevideo).

COLOMBIA (FRENDX) On 9/30, the Colombian govt released a decree #2085 which classifies stations into four groups (informativo, recreativo, educativo and docente); sets limits on the number of stations in a city (3 categories: high-powered, 1 station per 250,000 people; medium-, 1 per 100,000; low-, 1 per 30,000;) and places restrictions on everything from coughdrop ads to saying anything that might interfere with judicial or police investigations. In the event of an emergency, private stations are to be merged with R. Nacional to provide official info. It also compels stations to give complete ID: name, call, address, freqs, at s/on, s/off, and allows Ministry of Communications to shut down a station if it is QRMing another and keep it shut until the station can prove there is no longer any QRM problem. The lengthy 104- article decree also restricts programming (no foreign radionovelas on MW, no novelas on FM). (El Tiempo de Bogota and 2 other papers, summarized by Adam Gaffin, Brooklyn, NY, U.S.A.). As appears in Glenn Hauser's Listener's Notebook column, ed.

GREAT BRITAIN (MWN) (Follows a summary of Local Radio Forum, the MWN review of Independent Broadcast Authority and BBC local radio:) Both the BBC and the IBA have booklets listing TV channels and radio frequencies. Write to: BBC Engineering Information Department, Broadcasting House, LONDON W1A 1AA; IBA Engineering Information Service, Crawley Court, WINCHESTER, Hants SO21 2QA.

Radio Trent opened 7/3, serving the Nottingham area. Sked, 0600-2400 (0700 Sundays). Address, Radio Trent, 29/31 Castle Gate, NOTTINGHAM, NG1 7AT. Reports to C. E., G.E.Woodward. MW, 998, Trowell transmitter site is shared with BBC, two short, phased masts, 150 ft high; signal combining done by BBC.

Radio Tees opened 6/24, serving Cleveland, South Durham, and North Yorks. Address, Radio Tees, 74 Dovecot St., Stockton on Tees, Cleveland. Sked, 0600-2400 (0700, Sundays), off 0100 Saturdays and 2200 Sundays. MW, 1169, N. Stockton transmitter site shared with BBC.

Pennine Radio, Bradford: sked, 0600 to 0100. 35 staff and 5 presenters. Reports to G.E., P.O. Box 235, Pennine House, Forster Square, Bradford, W. Yorks, BD1 5NP. MW 1277, transmitter site Tyersal Lane. Coverage is for the Bradfords and Leeds area. The first IBA tests were 7/13 and 15. Possible opening dates are 16/9/75 (P.R.) or 15/10/75 (IBA). There are no signs of further tests up to 30/8/75; usual pattern is for them to begin approximately 3 weeks beforehand. We favour the IBA date, as quoted above, for opening.

Victory Radio, Portsmouth, MW 1169. Due in October. Primary coverage circular, over local area passing thru Cowes; secondary covering just beyond Southampton. Address, P.O. Box 257, Fratton Rd., PORTSMOUTH.

Radio Orwell, Ipswich: The IBA station hopes to be on the air by end of October and was reported as trying to raise capital of £230,000 (Daily Telegraph)

Radio Kennet, Reading, has been granted planning permission to set up their studios, etc., at The Filberts, a Berkshire County Council Storage Base in Bath Rd., Theale (Reading Chronicle). This will be the studio and office location. Opening possibly early 1976. Financial backing from The Sun group (press reports).

Beacon Broadcasting, Ltd., Queen St., WOLVERHAMPTON, WV1 3BU is seeking capital of £350,000 plus £100,000 overdraft. Prospectus published 25/3/75. On the air by end of year covering areas of Dudley, Sandwell, Walsall, and Wolverhampton. MW, 989 kHz. Chief Executive is an American, 31-year-old James Oliver. Studios may be in Dudley.

BBC Radio Derby is still raising 110-ft temporary mast with transmitter in a caravan.

BBC Radio Leeds has now opened a studio in Bradford.

BBC Radio Carlisle on 755 has increased power to 1 kW. Also 2 kW for Radio Four on 1052. Both opened 13/6/75.

BBC Radio Manchester is still looking for a new location for mast and transmitter, so present 1 kW setup remains for a while.

(Reporters for above: Ted Chamberlain, Roy Patrick, Derek Waller, Ken Fletcher, Ron Gilbert, Terry Sale, Chris Taylor, Harold Emblem, Clive Jenkins, Martin Hall, Michael Simpson)

MOZAMBIQUE Republic of S. Africa (SCDX) R. Clube Moçambique, R. Pax, and Aero Clube de Beira were nationalised 9/23 and are now known as R. Moçambique. Simultaneously, SABC taped programmes broadcast by LM Radio are stopped and replaced by Radio 5, a new network, opened 10/13. R.5 will be identical in format to LM Radio and will continue to use MW channels of 701, 719, 728, 782, 800, 1115, 1286 and 1313 kHz (Richard Ginbey, Vanderbijlpark, and Gerry E. Wood, Radio RSA, R. of S. Africa).

NORWAY (SCDX) The Students' Ragweek transmitter in Trondheim has been heard testing on 1313 kHz after closedown of NRK's home service (Miss Mette Larsen, Stavanger, Norway).

Thanks to Father Jack Pejza for the copies of Medium Wave News, from which above (MWN) items were excerpted. Til next no-73 Charlie

PRESIDENT'S REPORT

PROPOSAL	RLF	NH	PRK	ELK	BN	FJP	JZ	RESULT
6.2-50	F	F	F	F	F	F	F	PASSED
6.2-51	F	F	F	F	F	F	F	PASSED
6.2-52	F	F	F	F	O	F	O	PASSED
6.2-53	F	F	F	F	O	F	F	PASSED
6.2-54	F	F	F	F	F	F	F	PASSED
6.2-55	F	F	F	F	F	F	F	PASSED
6.2-56	F	F	F	F	F	F	F	PASSED
6.2-57	F	F	F	F	F	F	F	PASSED
6.2-58	F	F	F	F	F	F	F	PASSED
6.2-59	F	F	F	F	F	F	F	PASSED
6.2-60		WITHDRAWN				WITHDRAWN		
6.2-61	F	F	F	F	F	F	F	PASSED
6.2-62	F	F	F	F	F	A	F	PASSED
6.2-63	F	F	F	F	F	A	F	PASSED
6.2-64	A	F	F	F	F	F	A	PASSED
6.2-65	A	F	F	F	F	F	A	PASSED
6.2-66	A	F	F	F	F	F	A	PASSED
6.2-67	A	F	F	F	F	F	A	PASSED

KEY: A-Abstain F-Favor O-Oppose  
Directors: Robert Foxworth, Nancy Hardy, Percy Kesteven, Ed Krejny, Bill Nittler, Father Jack Pejza, John Zondlo.

PROPOSALS:  
6.2-50 The separation between membership dues and subscriptions to DX Monitor is to be dropped in favor of a unified membership fee. The non-membership subscription rate to DX Monitor is to be dropped. Submitted by Father Jack Pejza, Grant Manning and Randy Seaver.

- 6.2-51 An advertising budget of \$60 a year (\$5 a month average) be established. Submitted by Father Jack Pejza, Grant Manning, and Randy Seaver.
- 6.2-52 A trial membership be established, to consist of ten issues of DX Monitor plus the New Member's Handbook, a beginner's guide to broadcast band DX'ing. Submitted by Father Jack Pejza, Grant Manning and Randy Seaver.
- 6.2-53 Drop the title of Publisher and substitute the title of Circulation Manager (or Business Manager). Submitted by Father Jack Pejza, Grant Manning, and Randy Seaver.
- 6.2-54 Approve the six months financial statement, as of 2/28/75.
- 6.2-55 Confirm Tom Butas as Achievement Awards Committee Chairman.
- 6.2-56 Confirm James T. Poque as Editor of the Central DX Roundup.
- 6.2-57 Confirm Charles Alan Tavior as Countries List Committee Chairman.
- 6.2-58 Confirm the nomination of Michel Breger, Steve Moss, and Walter Kuenast as Joint Editors of DX Records.
- 6.2-59 Confirm the nomination of Rick Heald as Editor of Western DX Forum.
- 6.2-60 Withdrawn.
- 6.2-61 Re-confirm Dr. Michel Breger as the Contest Committee Chairman.
- 6.2-62 Confirm Al Ogrizovich as the Veries Signer List Editor.
- 6.2-63 Approve a 2-3 minute program weekly on KDWN-720, Las Vegas.
- 6.2-64 Approve Seattle Publishing Committee to replace the San Diego Publishing Committee. Submitted by Phil Bytheway, Bruce Portzer, and Mike Worst.
- 6.2-65 Confirm Phil Bytheway as Publisher.
- 6.2-66 Confirm Mike Worst. as Editor-in-Chief.
- 6.2-67 Confirm Rob Keeney as the Courtesy Programs Committee Chairman.

The chairman of the new Board of Directors is Father Jack Pejza.

PROPOSAL	RLF	NH	GM	FJP	BP	RFS	JZ	RESULT
7.1- 1	F	F	F	F	F	F	A	PASSED
7.1- 2	F	F	F	F	F	F	F	PASSED
7.1- 3	F	F	F	F	F	F	F	PASSED
7.1- 4	F	F	F	F	F	F	F	PASSED
7.1- 5	F	A	F	F	F	F	F	PASSED
7.1- 6	F	F	F	F	F	F	F	PASSED
7.1- 7	F	A	F	F	F	F	F	PASSED
7.1- 8	F	F	F	F	A	F	F	PASSED
7.1- 9	F	F	F	F	F	F	F	PASSED
7.1-10	F	F	F	O	F	F	F	PASSED
7.1-11	F	F	F	F	F	F	F	PASSED
7.1-12	F	F	F	F	F	F	F	PASSED
7.1-13	O	O	O	O	O	O	O	DEFEATED
7.1-14	F	F	F	A	F	F	F	PASSED
7.1-15	F	F	F	F	F	F	A	PASSED
7.1-16	F	F	F	F	F	F	F	PASSED
7.1-17	F	F	O	F	F	F	O	PASSED
7.1-18	F	F	F	F	F	F	F	PASSED
7.1-19	F	F	F	F	F	F	F	PASSED
7.1-20	F	F	F	F	F	F	F	PASSED

KEY: F-Favor O-Oppose A-Abstain  
 DIRECTORS: Robert Foxworth, Nancy Hardy, Grant Manning, Father Jack Pejza, Bruce Portzer, Ronald Schatz, John Zondlo.

- PROPOSALS:
- 7.1- 1 Reconfirm John Zondlo as CDXF Editor.
  - 7.1- 2 Reconfirm Rick Heald as Western DXF Editor.
  - 7.1- 3 Reconfirm Mike Mitock as EDXR Editor.
  - 7.1- 4 Reconfirm Jim Poque as CDXR Editor.
  - 7.1- 5 Reconfirm Nancy Hardy as WDXR Editor.
  - 7.1- 6 Reconfirm Mike Worst as Broadcasting Information Editor.
  - 7.1- 7 Reconfirm Bill Hardy as Special Features Editor.
  - 7.1- 8 Reconfirm Bruce Portzer as DXWW Editor.
  - 7.1- 9 Reconfirm Carol Schweiger as Standby Editor.
  - 7.1-10 Reconfirm David Leach as Sports Networks Lists Editor.
  - 7.1-11 Reconfirm Karl Forth as Veries Column Editor.
  - 7.1-12 Reconfirm Larry Flegle as Old Time Radio Editor.
  - 7.1-13 Reconfirm Stephen Howe as Poor Reports Committee Chairman.
  - 7.1-14 Reconfirm Father Jack Pejza as ANARC Rep.

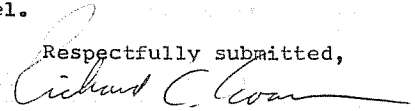
- 7.1-15 Reconfirm John Zondlo as ANARC Rep.
- 7.1-16 Reconfirm Gene Martin as our Registered Agent in Colorado.
- 7.1-17 Reconfirm George Jensen as Flections Committee Chairman.
- 7.1-18 Authorize Seattle Publishing Committee to open a checking account in the club's name. Submitted by Mike Worst.
- 7.1-19 Amend the Editorial Policy to provide for only two Forum editors. One will handle the reports east of the Mississippi River and the other editor to handle those west of the River. Submitted by Richard C. Evans.
- 7.1-20 Confirm John C. "Charley" Keleher as "Spotlight on..." (Eastern) Editor.

With favorable vote on proposal 7.1-19 above, there are only two editors now handling the forums. Those who were reporting to Bruce Heimburger should now definitely send their reports to John Zondlo. This change was made in hopes of streamlining our editorial staff somewhat.

Would those interested in bidding for the 1976 IRCA please let me know as soon as possible? Two bid forms are out right now, but I don't know if they will actually be bidding for the convention site or not.

The Board is now voting on a proposal to raise the dues to \$12 a year. With this amount, the club will continue to publish 34 issues per year. The current \$9.50 dues rate has been in existence since Nov., 1968. I don't know of any other club which has had such a stable dues level.

Respectfully submitted,



Richard C. Evans,  
 President, IRCA

Nov. 20, 1975

## Consumer RFI Protection Proposed for FCC Control

WASHINGTON, DC — Power for the FCC to regulate the manufacturing of electronic home-entertainment devices to eliminate susceptibility to radio frequency interference (RFI) is the focal point of a bill introduced in the House of Representatives on May 15.

The bill, proposed by Congressman Charles A. Vanik of Ohio suggests regulations be established dealing with the use of protective components in audio and visual electronic equipment. These regulations would apply to the manufacture, import, sale, and shipping of consumer electronic devices.

The Vanik bill differs from the Teague-Bennett Bill which never materialized in the last session of Congress, and included radio and TV equipment only. Vanik's proposal covers all audio/visual electronic equipment.

Theodore Cohen, secretary of the American Radio Relay League (ARRL) RFI task force states, "The time is right for this type of legislation. The consumer is becoming increasingly aware that RFI problems are not simple interference, but are due to the interception of signals by devices which were not designed to operate in today's urban and suburban RF environment."

path as the automotive manufacturers, where federal regulations are leading them to price themselves right out of business."

Several manufacturers of home-entertainment equipment expressed prime concern over television sets. By adding shielding and filtering for RFI protection, they believe the cost could surge to the point where the "second set" market might be seriously jeopardized. The FCC and several manufacturers are attempting to come up with concrete figures regarding the rise in price that would result for various types of home-entertainment devices, if RFI protection were enacted, but none have been determined as yet. Speculation on price hikes ranges between \$7 and \$100.

### Cost is Weighed

The consumer affairs council of the EIA declined comment on Vanik's bill until their study of its implications is complete. Cost to the consumer weighed against the necessity for protection is being considered by the council.

According to Brandan Harrington, legislative assistant to Congressman Vanik, in March 1974 the number of citizens band radio operators in the U.S. was 856,977. This amount rose in March 1975 to a total of 1,205,742. "This number is expected to continue to rise," states Harrington, "along with the number of complaints resulting from interference." With an increase in citizens band radio along with land mobile radio, police, fire, and emergency transmitters, home-entertainment equipment will become more and more susceptible to RF fields.

### Protection Missing

Cohen notes that in a time when manufacturers are attempting to cut costs and economize for lower consumer prices, RFI protection is being left out of otherwise well-designed equipment. A spokesman for RCA expressed concern over the possibility of increasing the consumer cost of home electronic equipment. He reports, "We are concerned about going down the same

San Diego Evening  
 Tribune  
 SAN DIEGO  
 14 OCT 75

**Marconi  
 got 'signal'**

WASHINGTON (AP) —  
 In 1895 a 21-year-old Italian

set up an apparatus in a vineyard near Bologna and, using grape poles to hold his antennas, sent an electric signal from one pole to another without wires.

It was the beginning, just 80 years ago, of the wireless telegraph which led to radio communications.

In the hands of the young

Guglielmo Marconi it progressed rapidly.

In 1896 the inventor secured his first patent in Britain, and on July 13, 1897, he received an American patent.

He was named inventor of the month for July by the Intellectual Property Owners.



THE WORCESTER LONG DISTANCE M.W. RECEIVER

by J. A. Worcester  
R.D. 1  
Frankfort, NY 13340

In the design of a long distance medium wave receiver, the obvious problem of obtaining sensitivity sufficient to amplify the first circuit noise to room volume is so easy to achieve that it hardly ranks as a major design characteristic. Selectivity and strong-signal-handling capability, on the other hand, are overriding design factors of great importance and merit the utmost in study and creativity. The factor of selectivity in its application to the standard superheterodyne receiving circuit is a two-part problem. Selectivity ahead of the converter must be sufficient to reject the unwanted responses that are peculiar to the superheterodyne circuit and post-conversion selectivity is required to reject unwanted signals close to the desired one in the crowded medium wave environment. This latter problem will be considered first along with a breakthrough solution that provides selectivity in excess of that deemed possible previously by even the "ideal" selectivity characteristics of a vertically sided rectangle!

Substantially all of the close-in selectivity is obtained in the intermediate frequency amplifier. In conventional practice, the pass-band of this amplifier must be wide enough to pass the sideband information required for intelligent speech and to pass as well, an optimum signal-to-noise compromise on music. This means a 6 db bandwidth in the range of 4.5 to 5 khz. Obviously, then, from a selectivity standpoint there will be little attenuation of an undesired carrier one, two, or perhaps even three khz from the desired signal. This usual practice, however, fails to make use of the unique properties of the standard A.M. double sideband signal. The I.F. amplifying system in this receiver employs separate amplifiers for the upper and lower sidebands; each of which passes the carrier with 6 db attenuation. These amplifiers feed a novel detection system called DIFFERENTIAL SIDEBAND DETECTION (patent pending). Figure 1 diagrams the essentials of this selectivity breakthrough. It will be noted that two transistor detectors, Q1 and Q2, are used in a series output connection. The bias batteries shown indicate that just enough opening bias is applied to each base to start collector conduction and thus provide efficient detection. Actually, batteries are not used but are shown to simplify the explanation. Transistor Q1 is driven by the USB amplifier and Q2 by the LSB. The detected audio signal appears across R1. First consider what happens for an on-tune 455 khz signal. In this instance, the signal from each amplifier drives the transistors equally, and the collector currents of the two transistors are driven in unison as they must be in a series connection. Obviously, the detection process is completely normal. The DC voltage at point X then stays constant at 1/2 the B-plus supply.

Now consider what happens when the signal is at 456 khz. In this case the signal applied to Q1 is very strong and that applied to Q2 very weak. Q1 therefore, wants to draw a heavy current but is prevented from doing so by Q2 which is drawing only a weak collector current. The voltage across Q1 must then drop until its output current equals that of Q2. An inspection of a typical transistor collector family will show that this means the voltage across Q1 will be only two-tenths of a volt or so, indicating that this transistor has become an essential short-circuit and contributes nothing to the output. The audio output across R1 will now be determined by the weak signal from the LSB amplifier and will respond only to the amount of 456 khz signal that manages to permeate the LSB amplifier. Obviously for a 454 khz signal the process reverses. To obtain a clearer picture of what is happening, consider Figure 2.

Figure 2 is a stylized picture of two mechanical filters with shape factors of 2 bandwidths of 2.5 khz, and positioned so that the carrier is attenuated 6 db in each filter. The in-band ripple that is characteristic of these filters is not shown as it is not involved in the selectivity process. It was noted above that at 456 khz the response is that of the LSB filter showing an attenuation of approximately 50 db and at 454 khz the response will be that of the USB amplifier, also about 50 db. The 60 db bandwidth is now only 2.5 khz while the 6 db bandwidth is 5.0 khz! It will be noted that the effective selectivity curve becomes the overlap or differential of the two curves which accounts for the nomenclature "DIFFERENTIAL SIDEBAND DETECTION."

For a number of reasons mechanical filters are not used in the actual receiver. For one reason, very high carrier attenuations at 1 khz removed are not all that useful since the signal-to-interference ratio in the output will be determined largely by the high energy sidebands falling in the 455 khz response region. Also, the shape characteristic of a mechanical filter promotes the production of overshoots on impulse type noises such as static and the "buckshot" of sideband splatter. From a freedom from overshoot standpoint, the ideal response curve should look like a Gaussian error curve. Cascaded single tuned circuits approximate this shape closely but would require too many transistors. Double tuned circuits are a good compromise providing the coupling is maintained below the flat-flat region. Returning to the reasons for not using mechanical filters, it is felt that most DXers like to have a pleasant, realistic tone from their receivers and the substantial inband ripple that some of these filters have militates against good audio response due to the frequency distortion that results. Perhaps all of the above reasons are made academic by the realization that no suitable pairs of mechanical filters are currently available to the writer's best knowledge. For use in communication receivers, it is desirable to attenuate the carrier as much as possible, typically 25 db. In the circuit described, more than 6 db attenuation would cause amplitude distortion at high modulation percentages. To have special pairs designed for this purpose would be prohibitively expensive and time consuming at this juncture.

In the receiver described, each sideband amplifier comprises 16 transformers arranged in double tuned pairs plus a single special transformer to drive each detector. These filters have individual shape factors of 3 providing a 6 db bandwidth overall of 4.5 khz and selectivity as shown in Figure 3. The attenuation at 1 khz removed is approximately 30 db and at 2 khz removed about 60 db.

The preceding paragraphs have been addressed to the post-conversion selectivity problem and have described a novel breakthrough detection system to greatly facilitate the reception of foreign broadcasts on split frequencies. Selectivity prior to the converter is also very important to eliminate the various spurious responses that are unwelcome guests in the superheterodyne reception process. The effective selectivity provided is a function of the number of tuned circuits and the "Q" of same. This may sound like an easy problem to handle but the fact that the circuits must be tunable over a 3 to 1 frequency range and that the gain and bandwidth should remain constant over this range becomes a tough nut to crack when as many as three tuned R.F. circuits are employed. The use of inductive tuning would simplify these problems somewhat but such systems tend to become mechanical monstrosities and the realizable "Q's" are very low. Accordingly, this receiver uses a standard four section gang with three sections providing preselection and the other tuning the oscillator.

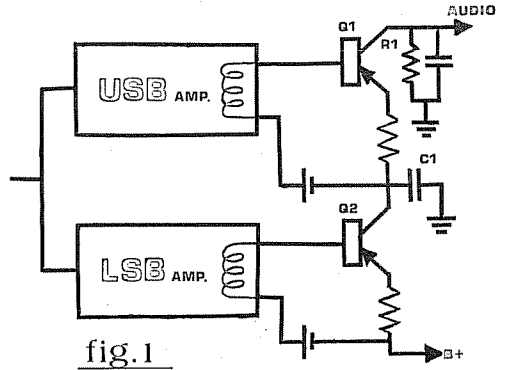


fig. 1

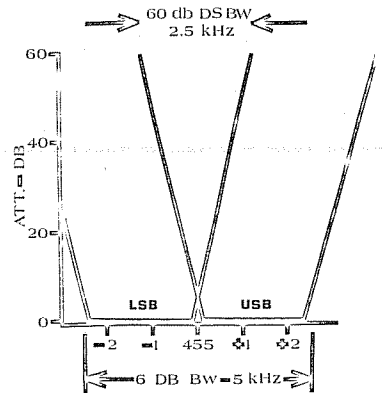


fig. 2

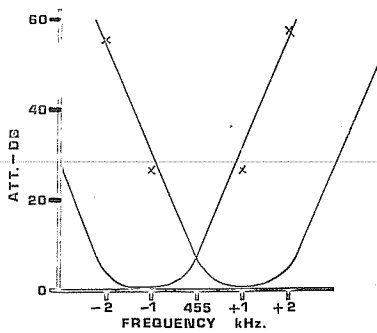


fig. 3

A tuned circuit in which the capacitor is the variable element has an impedance characteristic (gain) that rises linearly with increasing frequency and a bandwidth that also increases linearly as the frequency goes higher. The above assumes that the "Q" remains constant which is substantially the case. If three such circuits are cascaded, the gain would vary 27 to 1 over the band. Thus if the receiver were designed properly at the high frequency end of the band so that AVC control took hold with a 1 to 2 microvolt signal, the receiver would be severely sensitivity-limited at the low end of the band necessitating constant adjustment of the volume control as signals of varying strength are received. On the other hand, if the receiver were designed in the manner noted above at the low frequency end of the band, the noise between stations at the other end of the band would be intolerable and with the receiver going into severe AVC on noise alone, the signal-to-noise ratio would be affected adversely. Likewise, in the case of a 27 to 1 variation in bandwidth over the tuning range, if the "Q's" were made high enough to provide meaningful spurious signal rejection at the high frequency end of the band, such as would be provided by a 10 khz bandwidth, the bandwidth at the low end would be only .37 khz; not suitable at all for the reception of broadcast type signals. If the design situation were reversed with 10 khz bandwidth at the low end, at the high end the resulting 270 khz bandwidth would amount to virtually no rejection at all.

In view of the above, it is evident that if the exceptional spurious rejection possibilities of three tuned preselection circuits are to be realized, a design breakthrough is necessary to assure simultaneously both constant gain and constant bandwidth over the extent of the tuning range. There are other engineering reasons for doing this that are not of sufficient general interest to explain in detail. Figure 4a shows a conventional double tuned circuit with capacitive coupling. Since there is a 3 to 1 frequency coverage by the variable capacitors, their capacitive variation must be 9 to 1. Thus, with a fixed coupling capacitor the coupling coefficient is 9 times as high at the high frequency end than at the low; hardly the constant condition we are after. If the coupling capacitor could be replaced by a pure inductance as in Figure 4b, the coefficient of coupling becomes constant since the tuning inductances do not vary. This would produce constant gain if ordinary tuned circuits were involved but in order to achieve constant bandwidth it is going to be necessary in some manner to progressively reduce the "Q" of the tuned circuits as the frequency decreases. When this is accomplished, the coupling reactance must be made to vary 9 to 1 over the band rather than the 3 to 1, attained by the coupling inductance of Figure 4b, in order to maintain constant gain. This is accomplished by adding a coupling capacitor as shown in Figure 4c. If the resulting series tuned circuit is resonated at a suitable frequency below the lowest frequency covered, say 400 khz, the necessary 9 to 1 reactive coupling change can be realized to achieve constant gain. In actual practice, however, this circuit as diagrammed in Figure 4c is not realizable because the necessary inductance becomes so large that the unavoidable distributed capacitance of the coil causes it to resonate in the band covered. To eliminate this problem the coupling network can be tapped down on the tuned circuits as shown in Figure 4d. The proper tap selection will permit the use of a coupling inductance sufficiently low that its self resonance falls well above the highest frequency covered. If this proper tap should fall at N/3, to pick an example, the same result could be achieved with the same coupling values by tapping the first coil at N/9 and by returning the coupling network to the top of the second tuned circuit, as shown in Figure 4e. The reason for doing this is that it now permits us to simultaneously realize our twin objectives of constant gain and constant bandwidth as far as the second tuned circuit is concerned. Figure 4f shows such a circuit where the secondary of the first tuned circuit looks like approximately 1000 ohms which suitably loads the second tuned circuit at the low end of the band because the series coupling network is approaching resonance while at the high frequency end the reactance of the series tuned circuit is nine times higher which essentially decouples the 1000 ohm loading resistance from the second tuned circuit. It is hoped that this explanation will serve as a sufficient disclosure of the principle involved since the mathematical treatment, while uninvolved, is rather extensive.

It is now appropriate to examine how this principle can be applied to the complete R.F. amplifier. To meet the sensitivity requirements of a long distance receiver, it is necessary to employ an R.F. amplifier stage to mask the relatively high noise content of the converter. Also, to obtain optimum signal-to-noise ratio, only one tuned circuit should precede the amplifier in order to minimize insertion loss, with the remaining two tuned circuits located between the R.F. amplifier output and the converter input in a reactively coupled arrangement. Figure 5 shows such a circuit. In the case of the tuned antenna transformer T1, the series coupling capacitor becomes the longwire capacitance-to-earth. The correct 220 pf value is provided by a 70 foot longwire (21m), approximately. A front-panel switch permits adding additional capacitance in series with the antenna to compensate for still longer longwires. Antennas shorter than 50 feet (15m) are not recommended. Low impedance inputs such as those from a loop preamplifier have the 220 pf capacitor added by a switching arrangement as shown.

Transformer T2 in the output of the R.F. amplifier is broadbanded to cover the entire MW band without tuning. It couples the correct resistance through the coupling network to tuned transformer T3. T3, in turn, couples the proper resistive loading through the last series network to T4. Inspection of the measured image rejections gives a good idea of the superior rejection characteristics of this amplifier. These are shown in Figure 6, and reflect the excellent basic "Q's" of the tuned transformers T1, T3, and T4. These are enclosed in 18mm ferrite pot cores that provide realizable "Q's" in the circuit of 160 at 1600 khz, and this "Q" is reduced progressively by the circuitry described as the frequency is reduced, to approximately 55 at the low end of the band. The effectiveness of this circuit in providing constant bandwidth is demonstrated by the nearly constant image rejections over the extent of the band. Presently available receivers, even those in the \$10,000 area, have image rejections that are not only considerably lower to start with but slope downward badly as the frequency is increased.

Ferrite core material can be criticized from the standpoint of R.F. saturation on very strong signals. The result is that detuning results under heavy signal drive which produces some non-linearity. In order to minimize this effect, the standard 10mm construction with the "dumbbell" bobbin for the winding was rejected since ferrite is present in the concentrated magnetic field. The larger pot core type, though expensive, was used instead because not only is the flux density reduced by the larger size but ferrite is not present in the highly concentrated central field except for the small tuning slug. An R.F. gain control is provided to avoid any problem of this nature that might occur with signals appreciably in excess of 110 db. Powdered iron cores were considered as a substitute, since they do not saturate, but the realizable "Q's" with this material are so low that ferrite material, all things considered, provides much the better compromise.

High image rejection, such as that indicated in Figure 6, is a good indication, also, of superior rejection of other spurious responses closer to the desired signal. With the receiver tuned to 1000 khz, no further spurious responses were observed at any frequency with an undesired signal input of 126 db (2 volts).

FIG. 4

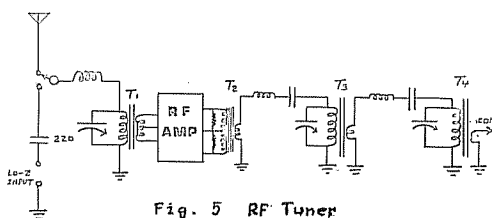
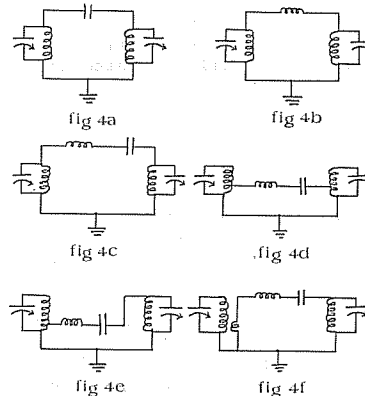
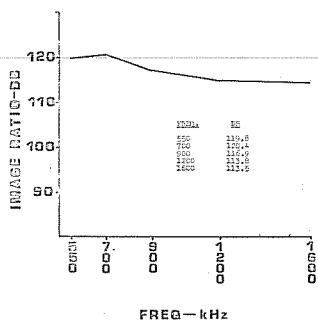


Fig. 5 RF Tuner  
(Patent pending)

FIG. 6



Perhaps at this point a look at the receiver's sensitivity is appropriate. The antenna coil circuit, shown in Figure 5, is matched to the longwire's impedance which is in the order of 1000 ohms. Most receivers, on the other hand, match to an input impedance of 50 ohms, which just happens to be the impedance of most signal generators. This permits a direct connection between signal generator and receiver, thus avoiding the loss introduced by the intervening dummy antenna which must otherwise be used. In addition, matching to the input of the first active device by the antenna transformer results in a greater voltage step-up when you start from 50 ohms than can be realized when the starting impedance is 1000 ohms. All this means that the sensitivity measurements for publicity purposes are much better in the 50 ohm case but the actual performance with a real live longwire is very bad because of the large mismatch. In view of the above, two sets of sensitivity measurements are provided in Figure 7; one showing the sensitivity when measured through a standard IEEE dummy and the other made by connecting the signal generator through a 50 ohm matching transformer to the receiver. Curve B is applicable when comparing sensitivity measurements with other receivers having 50 ohm inputs.

Having considered the dual selectivity problems in some detail, we can now turn our attention to the equally important problem of strong signal handling capability. Referring back to Figure 5, it will be noted that the R.F. amplifier is indicated only as a "black box." What to put in this black box is the purpose of the next few paragraphs. Firstly, as regards the selection of the active device, the choice is between tubes, FET's, and bipolar transistors. The first two are simple majority-carrier devices depending on electron flow for their operation; while the latter is much more sophisticated, relying on the production of minority carriers or "holes." The effectiveness of an active device as an amplifier is indicated by its mutual conductance (Gm) which is merely the change in output current that results from a known change in input voltage. This can be labeled in micromhos or more directly as milliamperes-per-volt. A fairly accurate "rule of thumb" is that majority-carrier devices have mutual conductances of about one ma/v for every milliamperere of output current. Thus an FET operating with a grain current of 5 ma would have a mutual conductance of 5 ma/v. Minority carrier devices, however, have Gm's of 40 ma/v for every milliamperere of collector current and are therefore much more "vigorous" active devices. A bipolar transistor, accordingly, with a collector current of one milliamperere would have a Gm of 40 ma/v. The other major distinction that must be made is in regard to the relative input impedances of the two device families. Tubes and FET's have very high input impedances, of the order of megohms at MW frequencies; but as the frequency increases further, various transit time and feedback effects gradually reduce this impedance until at 100 Mhz it is of the order of only a few thousand ohms. A bipolar transistor, on the other hand, has a low impedance even at MW frequencies. As a matter of fact it is equal to the current gain divided by the mutual conductance. Thus for a beta of 40, the input impedance becomes 40/40 ma/v or 1000 ohms. At 100 Mhz, the input impedance would still be 1000 ohms providing a transistor type was selected whose beta remained at 40 at this higher frequency.

The preceding paragraphs are preparatory to considering the widely held notion that FET's have superior strong-signal handling properties to bipolar transistors, even at MW. If a strong signal is applied to the input of an active device, basic overload occurs when the negative going excursion of the signal is sufficient to cut off the flow of output CURRENT or when the positive drive is enough to reduce the output VOLTAGE to zero because the drop across the load impedance equals the supply voltage, or a combination of both. Thus, in the case of an FET having a 5 ma drain current and a Gm of 5 ma/v, a negative going peak signal of 1 volt would cutoff the drain current. A bipolar transistor, however, with a collector current of 1 ma and a Gm of 40 ma/v would experience collector current cutoff with a peak negative signal of only 1/40 volt. Obviously, therefore, at say 100 Mhz, where the input impedances are essentially equal, and the devices driven from the same tap on the input transformer, the FET would have a strong-signal handling superiority of nearly 40. On MW, however, the FET has to be able to handle a much stronger signal to merely break even with a bipolar device because the high input impedance FET must be driven from the top of the tank while the bipolar is tapped way down at a much lower voltage level. To develop some figures, a tuning capacitance of 50 pf and a coil "Q" of 160 would provide an impedance at 1600 khz of  $X_L = \omega L$ , where  $X_L$  equals  $1/6.28 fC$  or 1989 ohms.  $Z$  then equals  $1989 \times 160$  or 318,240 ohms, which becomes the impedance that drives the FET. To drive the bipolar at optimum signal-to-noise, however, requires an undermatched driving impedance of  $\sqrt{\beta} \times R_e$ . If beta is 50 and  $R_e$  26 ohms, this impedance becomes 184 ohms. The impedance ratio then becomes 318,240/184 or 1730. The turns ratio or voltage ratio is then the square root of 1730 or 41.6. The net result of all this is that an FET can handle 40 times as much signal as a bipolar but has to handle 41.6 times as much to break even due to the different voltage drive levels, so at MW it is pretty much of a standoff as far as signal handling capability is concerned.

The preceding paragraph becomes academic if the R.F. amplifier takes the form of a pair of Class AB push-pull transistors. The current cutoff condition in the output then never occurs because one transistor conducts while the other is cutoff and the only drive limitation takes place when the output voltage is reduced to zero by positive drive peaks. This drive limitation can be thwarted by increasing the voltage supply and by decreasing the load impedance. In this competition the FET is hopelessly outclassed. The much higher mutual conductance of the bipolar, 40 ma/v vs. 5 ma/v, permits the use of 1/8th the load impedance to obtain a given amplification and the much greater variety of available types permits the use of high voltage transistors suitable for MW use. The R.F. transistors used in this receiver, Siemens BF178, were basically developed for use as television horizontal sweeps. They have a maximum collector voltage rating of 160 volts which allows them to operate safely from a 75 volt supply. Their cutoff frequency is 120 Mhz which permits them to operate satisfactorily in the MW band if beta selection is employed to reject those above 75. Class AB operation, noted above, is really Class B in the audio sense as just enough quiescent current (2 or 3 ma) is allowed to flow to prevent crossover nonlinearities under strong signal conditions. The transistor's maximum collector current rating is 50 ma, but to draw anything approaching this in straight Class A operation would degrade the signal-to-noise ratio because of the high shot noise produced in the output.

Using the push-pull connection as noted above and with 47 ohm emitter resistors, the R.F. amplifier can handle a 2 volt, 100% modulated antenna signal before clipping occurs. Compare this with the signal handling capabilities of a tube amplifier. With a Gm of 5 ma/v, and operating with 5 ma plate current, a 1 volt half-peak signal would clip, which means .707 volts peak rms or .354 volts carrier, assuming 100% modulation. Since the tube is a high impedance device the antenna transformer would have a gain of typically 5, making the antenna signal .354/5 or only 71 millivolts! This signal handling limitation can be increased to 0.5 volt by the application of AVC to the R.F. amplifier which makes it possible to listen to a signal this strong but is of no help to the DXer who is interested in a weak signal on an adjacent or split frequency where the AVC has essentially disappeared due to I.F. selectivity, and the R.F. attenuation is minimal.

Moving on to the converter circuit, three of the high voltage transistors mentioned above are used in a balanced push-pull arrangement. This balanced operation cancels intermodulation products to the extent that none could be found at 20 khz removed at maximum signal generator settings (2 volts from one and 0.1 volt from the other). The common-mode I.F. rejection is also outstanding as noted on Figure 8.

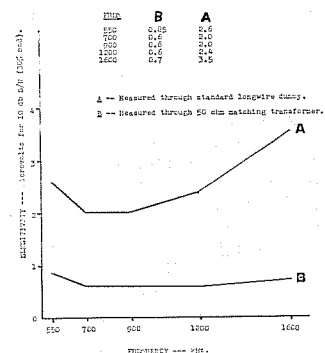


FIG. 7

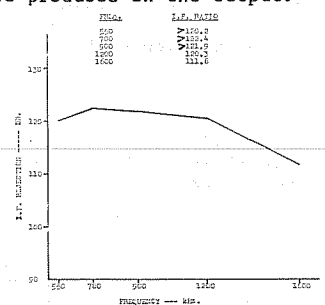


FIG. 8



LARRY V. FLEGLE, Editor

# The Good Old Days of Radio

While looking through some old volumes of DXing Horizons (no longer published—circa 1960) I came across an article by Henry Tyndall.

Hank's story went like this: "My first DXing was with a Radiola 2-A in 1923. A Radiola 4-A followed and in October 1924, a 4-tube regenerative Zenith was purchased, using 135 volts 'B' it had phenomenal receptive abilities. On one occasion, KPO, San Francisco, Ca. was heard so strongly about 3 A.M. that we plugged in the speaker and were able to get room volume using the first stage of two tubes, and KPO only had 500 watts then. (Hank was in Burlington, Vermont) WQAM, Miami, a 100 watter, was heard in late afternoon, long before sunset. TJW, Hamilton, Bermuda, heard on a DX special, used 7 1/2 watts. Many pages could be filled with the fantastic catches of yesteryear, with its clear channels unhampered by all-nighters. I started verifying in November 1924, mainly because of Ekko stamps being advertised over many stations as 'proof of reception.' I filled 4 loose-leaf albums with these stamps, backed, of course, by written confirmations.

On the morning of February 16th, 1931, a DX broadcast from HUS, San Salvador was scheduled for 2:30 A.M. Just as we broad ourselves with bated breath, WEAF boomed in with a test. CPC men contacted WEAF and finally got them to sign off. Over 100 DX'ers reported RUS (IRCA'er Dave Thomas was one) Those were the days when KFIU, Juneau, Alaska was heard using 50 watts. The secret? You can't log 'em if you don't try for 'em!"

I must agree with Hank's article. If you ever hope to have great DX stories to tell you must work at it.

Well, radio mts that's all for now, Ya'll take care and 73's. LVP

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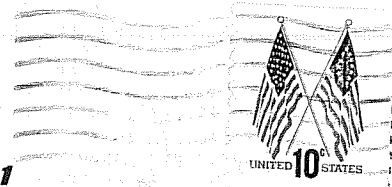
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