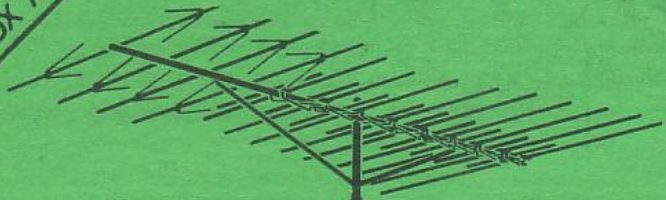




# VHF-UHF DIGEST

the official publication of the Worldwide TV-FM DX Association

DECEMBER 1976



I don't care  
how it looks--  
it's pulling in  
Nova Scotia!!



*Season's  
Greetings*

# **publishers' notes...**

**WTFDA HEADQUARTERS, P.O. BOX 163, DEERFIELD, IL 60015 USA**

LATE IN DECEMBER...This edition of the VUD will be arriving late at your QTH for these reasons: your editor, who does not drive, had to contend with final examinations and a city-wide transit strike over two weeks, delaying VUD work; our printer is being swamped as usual with Christmas orders; and as this is being written, an unsettled UPS strike threatened to further inflate the already-swollen volume of mail being handled by the Postal Service. Our apologies for the delays; all we can now do is guarantee that January will be better!

CHANGES, CHANGES...A number of alterations will be occurring in VUD columns over the next few months. The QSL and CCI columns are about to be consolidated into a single column for each; DX columns will be reallocated geographically; and a number of new columns will debut. Please check individual columns and the map outline on page 39 for details of these changes. Also, beginning next month, Headquarters will be located at P.O. Box 202, Whiting, Indiana 46394.

WRTVH OFFER...For the first time, WTFDA is offering the World Radio TV Handbook at a discount to its members. See page 22 for details of this special offer---and be sure to order before January 7, 1977.

BITS...We're still looking for further bids on the 1977 convention site. If you're interested in hosting WTFDA's annual gathering in '77, please make a formal bid to your editor...WTFDA Member Survey results will not be published until a majority of the questionnaires have been returned. At this writing, we still need 30 more surveys. Will yours be one of them?...Dave Janowiak's series on polarization will begin in February...Our thanks to Don Erickson for providing Xerox copies of past VUD technical material, the use of which begins in this issue.

NEXT MONTH...our spectacular Ninth Anniversary Issue, featuring many special articles and reports--including Pete Oprisko's account of how he managed to log 100 EFM stations, a report on Automated FM MS DX by Peter Sawatzky, and much more! Wishing you happy holidays...

73, Clarke Ingram for Pete Oprisko, John Zondlo, and Mike Hogan

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# WTFDA MAILBOX

John Zondlo  
6617 Maryland  
Hammond, IN 46323  
(219) 844-8694  
Deadline: 15th

WTFDA membership increases again, and here's part of the reason why.....

New Members:

E.D. Bair	111 W. Chestnut St.	Audubon, NJ 08106
Charles George	6407 Howard	Dallas, TX 75227
T.B. Schickling	620 30th St.	Manhattan Beach, CA 90266
Bob Young	1502 W. Broadway	Enid, OK 73701

Rejoin: Lars Ryden - Majvagen 6 - S-175 40 - Jarfalla, Sweden

Renew: Buck Battin, Jeff Driscoll, Robert Foxworth, William Palmer, Lee Prescott, Marvin Shults, Dennis Smith, Thomas Yeazell, Tom Yingling.

Address Change: Buck Battin-General Delivery-Duluth, MN 55806  
 Richard Clark-621 N. Euclid-Pittsburgh, PA 15206  
 James Shepherd-406 Harwood-Joliet, IL 60431  
 Don Voegele-45 Alisal Road-Santa Barbara, CA 93103  
 Ron Wing-705 N. Emporia, Apt. 2-Wichita, KS 67214

New member CHARLES GEORGE is 23 years old and lists his main DX interests as MW and SW. He is also a member of NASWA and IRCA. For FM DXing, Charles uses a Nobility portable AM/FM set, model number U4/707.

Tidbits.....

Here's some lengthy, yet very interesting comments from Dr. Winfield Massie (Box 126, Waverly, VA 23890): "Last month's (September) article on the comparative test of FM receivers was very informative. Question: How much individual variation is there in supposedly identical units? That is, if you were able to obtain a dozen or so receivers supposedly identical off of the assembly line, how much better would the best be than the worst? I would guess that the manufacturers have a pretty good idea but that it is a well kept secret. My interest is UHF TV. I have a 55 foot high tilt tower, home made, and a pair of Finco U3s stacked, Blonder Tongue UV amp 2, Belden 8290 lead in, Winegard distribution booster, and finally, Sylvania 25" color receiver. All of the above are nearly a decade old. I would like to have some idea as to what to replace them with as they give up, but have only ads and claims to go by. In particular I would like to have separate video monitor and receiver (called tuner demodulator) so that they could be upgraded separately. Lots of people build monitors and video demodulators at prices starting with Satchell Carlson and Sony, and working up through Conrac. Most tuners (if I may call them that) seem to feature relative primitive "tuners" ...turret and such...nothing like the Magnavox star system. They seem to be made to be tuned to one channel in the morning and left there all day...not what the DX fan needs. The video display presumably is very durable and rugged...and perhaps one gets what one pays for. Like the author of your report on the Sony FM receiver, I am willing to pay more for more performance, but not happy about the prospect of paying more and getting less. We would sure like to read a report about how folks made out with different video monitors and tuner demodulators. How many people made out with building large parabolic reflectors, say up to six meters wide, and feeding a conventional multiband antenna with it? I assume it would be practical to actually build it like a corner reflector being parabolic only on the vertical axis and rhombic on the horizontal axis. Also, how about variable gain preamplifiers? Does anyone use them? A final thought: what would it require to put a transmitter's call letters onto a subcarrier signal sent during the interval between pictures? And if this call letter signal were to be standard sometime in the future, would receivers be offered which would display call letters, etc., when requested to? Or would this be cheating, making things too easy for the DX fan...and the FCC folks monitoring stations. Many thanks to all of you hard working folks who keep the VHF-UHF Digest coming."

Your contributions to the Mailbox column are always welcome. See y'all in January!.....jz

# FEEDBACK

WINEGARD'S  
AC-4990

This will mark the return of the FEEDBACK column on a regular, but probably non-monthly, basis. A number of WTFDAers have complained about the lack of a forum in the VUD for discussion of club-related topics, and it is hoped that the reinstatement of this "letters to the editor" section will fill the void. Members are invited to send in their comments and questions on any pertinent topics for publication herein (names will be withheld if requested, but no anonymous letters will be printed) and if I'm unable to resolve the question, I'll refer the writer to the appropriate WTFDA "authority."

In the July VUD we published a brief report from Jim Gould regarding the new AC-4990 UHF preamplifier from Winegard, noting that because of its immunity to overload and cross-mod, plus its low noise figure, Jim believed it to be superior to the highly praised Blonder-Tongue CMA-Ub. This was followed by Bob Cooper's TEK-NOTES article in October, which noted that the Winegard had insufficient gain, and refuted much of Gould's claims while favoring the B-T CMA-Ub. Now, we have a number of comments from WTFDAers, which in essence seem to support Gould's contention that the AC-4990 is indeed superior.

The first to comment was PHOTO-NEWS editor Jim Alexander, who writes:

While you probably got quite a good run-down on the AC-4990 at the Convention (wrong -CWI), I thought you might want to know what I saw while visiting a DXer (Ken Simon) who is now using an AC-4990. It was really something: at 2:30 in the afternoon, WJCL-22 was in-- from West Palm Beach to Savannah is almost 400 miles! Later we also saw WJKS-17 Jacksonville over Ken's semi-local WLRN-17, and WJWJ-16 from South Carolina!

Evidently, Ken now gets the Orlando U's (even low-power WMFE-24) all the time...The stations he's now frequently receiving didn't use to be seen very often.

Anyway, after seeing the AC-4990's performance at Ken's, I was surprised to hear that there were some at the Convention that didn't think much of the AC-4990. It was really something to watch UHF from almost 400 miles at 2:30 in the afternoon, and to see SC from South Florida!

Interesting observations, Jim, but your editor wonders if the extraordinary Gulf tropo conditions might have been more responsible for these loggings than the AC-4990. Perhaps, Ken, you could enlighten us further on AC-4990 operation by forwarding your own comments on how the amp has performed over the past few months at your QTH.

Former VUD editor and 1976 convention host Morrie Goldman, also a WTFDA board member and representative to ANARC, sends these comments:

My AC-4990 never came! I ordered it immediately after the convention, but the distributor never got the amp from Winegard. So, other than what I saw at the convention, I have no observations. What I saw at the convention, however, was a preamp that is much less subject to cross-mod than the CMA-Ub. AC-4990 performance appeared to be better at the lower UHF channels, while the CMA-Ub seemed to perform best at the higher UHF channels.

Having participated in the combination UHF amp comparison and tropo opening at the WTFDA convention, I can attest to Morrie's observations. The AC-4990 resisted overload in the presence of the potent Chicago U's, while the CMA-Ub was all too often subject to cross-mod. The question remains, though, as to whether or not this advantage qualifies the Winegard as the better UHF preamp.

Next month, this discussion will continue with some excellent comments from Richard A. Rikoski, Ph.D, E.E., as well as anything you submit to the address at the bottom of our back cover before the 20th of December.

Clarke W. Ingram, Editor-In-Chief, VHF-UHF DIGEST

*Clayton Douglas*



# WV UTILITY DX

Pat Dyer  
5315 Silvertip Drive  
San Antonio, TX 78228  
Deadline: 10th of month

DECEMBER 1976

Hank Holbrook, 7211 Chestnut St., Chevy Chase, MD 20015 QSLed, GMT

<u>7-25:</u>	1312, KSK 348	156.80	Annapolis, MD (MD Marine Police; 50 watts)
<u>8-7:</u>	2225, KUZ 443	156.80	Chester, MD (Piney Narrows Marina; 25 w)
		156.425	
<u>11:</u>	0214, WL 4123	157.3	4.5 mi e Fair Haven (CAPTAIN CG, tug)
	1848, N8962T	128.1	200 mi Dulles (Trans International Air- lines; DC-8-61F; 25 watts)
<u>12:</u>	1716, N2253X	128.7	ov Dover, DE (Mr. Martin Fox, Twin Cessna Skymaster; 7000 feet)
<u>13:</u>	1250, "SBJ"	112.9	Solberg, NJ (FAA VOR; cw and vx ID; 125 w)
<u>16:</u>	1850, N7538R	119.7	10 mi s Bal. (Mr. Bruce F. Emge; Piper Cherokee 140; 1-engine, 2-seat)
<u>19:</u>	1147, N1502	127.9	(Continental Can Company, Inc.; Falcon Fan Jet; route Richmond, VA-La Guardia)
<u>20:</u>	1931, N8278U	119.7	ov Ches. Bay Br. (Mr. Michael Strachan; Cessna 172 Skyhawk '65; 1-e, 4-s; 7 watts)
<u>22:</u>	2043, N10AC	122.7	ov Richmond, VA (Ohio Art Company; Beech- craft King Air C-90 Prop Jet)
<u>28:</u>	1724, N80AC	118.6	30 mi n Westminster, MD (Allied Chemical Corp.; Grumman G-159; 2-e, 21-s; 20 watts)
<u>29:</u>	1424, N101RM	119.7	vic Annap. (Baltimore Birds Flying Club, Inc.; Piper Cherokee, 1-engine, 2-seat)
<u>9-6:</u>	1407, N9645L	119.7	Ches. Bay Br. (Edmosen Flight Training; Grumman-American AALB; 1-e, 2-s; 20 watts)

Now, my loggings. Hammarlund SP-600-JX-10, Hallicrafters SX-62, Allied A-2586; two 30' wires at 12' (ne-sw, nw-se runs). F2 unless noted, \* Es; GMT used - daily noted F2 MUF peak

<u>10-11:</u>	2025, 35.28	<u>16:</u>	1850, 30.30	<u>26:</u>	1720, 30.30
<u>12:</u>	2340, hi-37	<u>17:</u>	2230, 35.28	<u>27:</u>	0257, KME 438 *
<u>13:</u>	0025, KSV 810	<u>18:</u>	2305, 35.28		1740, 30.30
	KDZ 385	<u>19:</u>	2125, 32.96	<u>30:</u>	1950, 30.30
	0040, KFS	<u>20:</u>	2035, 32.96	<u>31:</u>	1735, 30.30
	2020, 30.30	<u>21:</u>	0005, S Diego *	<u>11-1:</u>	1945, 35.28
<u>14:</u>	2120, 32.82	<u>22:</u>	2120, 30.30	<u>2:</u>	1615, 30.30
<u>15:</u>	2042, 37.35	<u>24:</u>	2045, 32.82	<u>10:</u>	1852, 32.96

Oct 12-13 provided the highest US F2 MUF's since Nov 1975; other items noted were 30.66 harmonic (AFRTS?); 2358-0050, 30.80 VOA harmonic; 2330-0120, 35.22 tent Honolulu pager

KDZ 385	33.08	Coloma, CA-e	KSV 810	33.08	Portland, OR-h
KFS	34.05	Palo Alto, CA-ha	-	35.38	San Diego, CA-mp
KME 438	35.22	Orange, CA-(tone pager)			

e-emergency; ha-c.w. h.f. harmonic; h-hospital; mp-mobile phone

addenda: 10-7: 0119, KAB 223 37.10 Newton, IA (police)

Maybe this spot should be retitled the WV corner - The 18-minute past announcements now contain the Boulder K-Index (updated 00,06,12, & 18Z) --But, there are plans as of 1 February 1977 to delete 2.5, 20, and 25 MHz outlets. If you want to comment on that, write:

Frequency and Time Services Section  
National Bureau of Standards  
Boulder, Colorado 80302

73, Pat WA5IYX

# FC FM NEWS

Bruce F. Elving, Editor  
181/2 East 5th Street  
Duluth MN 55805

## New Stations Granted

AL Stevenson 101.7 940 h,v; 490'  
AK Anchorage 100.5 25000 h,v; -325' g  
CA El Cerrito \*88.1 10 [miles  
CA Indio 103.1 525 h,v; 628' cm; 14, 43/  
CA Paradise 96.7 3000 h,v; 285' rm  
CA Ventura KOVA-2 105.5\$ m 10 [KOVA Ojai  
CA booster; no mention of where any  
"KOVA-1" is, so I wonder why the "2"?)  
FL Orlando \*89.3 10 Oak Ridge High School  
FL Tampa \*88.5 45000; 680'(h) 36, 76 a  
community station: "Nathan Stubblefield"  
IL Champaign \*88.7 3300 h,v; 290'  
KS Concordia \*88.3 10 [miles  
ME Auburn 100.1 3000 h,v; 280' m; 15, 45/  
MD Emmitsburg \*89.9 10  
MS Clarksdale 106.3 3000 h,v; 300' mg  
MS Gulfport 96.7 3000 h,v; 260' 14, 44 mi  
MS Philadelphia 102.3 3000 h,v; 116'  
MO Farmington 98.5 100000 h,v; 870' mk  
NY Utica \*90.7 10 Syracuse U. branch.  
ND Mandan 104.9 3000 h,v; 287' mg  
OH Ottawa 106.3 3000 h,v; 267' m  
OH Bainbridge \*90.9 10 [miles  
OK Sapulpa 100.9 2000 h,v; 360' 15, 46/  
PA Chester \*89.5 10  
PA Millersville \*91.7 10  
PA Waynesburg 103.1 1100 h,v; 460'  
SD Aberdeen 94.1 100000 (h); 196' m  
TN Huntingdon 100.9 3000 h,v; 300'  
TN Jefferson City 99.3 3000 h,v; 300' mk  
TX Floresville 94.3 3000 h,v; 99' 8, 32 mi  
TX Odessa 99.1 100000 h,v; 410'g; 54, 125km  
UT Logan 92.9 29500 h,v; -720'  
WA Tacoma \*90.1 10 U. of Puget Sound  
WY Torrington 98.3 3000 h,v; 300'; 24, 74km

## Off The Air

WI La Crosse W292AB 106.3. Also possibly  
off the air: W292AA 106.3 Viroqua WI. These  
translators said to be having difficulty in  
receiving their primary station, WNBC102.5  
Madison WI, and are considering shifting  
their allegiance to WWIB 103.7 Ladysmith  
WI, and retain their gospel formats.

## Deletions

CO Durango K272AC 102.3  
CO Glenwood Springs KCKK \*90.5  
OH Paris WNCM \*90.1

## Off-Frequency

WI Ashland WATW-FM on 96.1 instead of  
95.9. To date I have not reported this  
to them, even though they have been off  
channel several weeks because they are  
less bothersome to my own DXing on this  
"off" channel than they would be otherwise.

## Facilities Changes

AL Birmingham WENN-FM 107.7 100000h,v; 640'  
AL Decatur WRSA 96.9 100000 h,v (830')  
AR Heber Springs KAWW-FM 96.7 adds v  
CA Arcata KXGO 93.5 250 h,v; 1050'  
CA Los Angeles KPFK \*90.7 adds v(ertical)  
CA Stockton KCJH from 90.1 to \*90.5(10w)  
CA Tulare KWSM 106.7 870 h,v; 2550'; 30,  
72 miles [apparently never went to 16kw]  
CO Denver KXXK 95.7 drops v ERP to 85 kw  
(keeping 100000 watts horizontal; 730')  
CT Bridgeport WPKK \*89.5 10000 h,v; 550'  
CT Hartford WJMJ \*88.9 7200 h, 7100v; 580'DA.  
CT Norwalk WNLK-FM 95.9 adds v  
FL Coral Gables WYOR 105.1 reduces from

160 kw h,v to 100 kw h,v (600'), but told  
they can appeal to courts to retain 160  
kw at this new height. Competitors  
squawked! Coverage to 39, 83 miles [pri-  
mary and secondary] from 41, 90 miles.  
FL Fort Myers WSOR 95.3 3000 h,v; 170'  
FL Jacksonville WJEE 107.3 300'h,v(100kw)  
GA Atlanta WREK \*91.1 adds Dolby  
GA Brunswick WYNR-FM 101.5 100000h,v; 240'  
IL Chicago WFYR 103.5 12500 h,v; 860' to  
Prudential Building; coverage same as  
before at 31, 70 miles.  
IL Mt. Carmel WJVC \*89.1 50000 h,v; 330'  
(correct FM Atlas listing which says  
\*89.5 for this station)  
IN Hartford City WWHC from 104.9 to 93.5  
IN Kokomo WKMO from 93.5 to 92.7  
IN Lafayette WXUS from 92.7 to 93.5  
WAZY-FM from 96.7 to 96.5 50000  
h,v; 500'; 33, 73 miles primary, secondary  
IN Muncie WWHL from \*91.5 to \*91.3  
IN Washington WFML 106.5 50000 h,v; 340'  
KS Garden City KUPK-FM 97.3 25000 (230')h  
KY Mayfield WXID 94.7 18000 h,v  
LA Shreveport KCOZ 100.1 300' (3000 h,v)  
KRMD-FM 101.1 100000 h,v; 970'  
MD Baltimore WEAAs \*88.9 12500 h,v; 220'  
MD La Plata WXTR 28000 h,v DA; 630' 32, 71  
miles; presumably with a DA null toward  
Baltimore. MD Cumberland WPVM 102.9  
3500 h,v; 1400'; 48, 109 kilometers.  
MA Williamstown WCFM \*91.9 is -750', not  
+750' (440w); signal said to be difficult  
to receive in parts of its hilly town!  
MI Spring Arbor WSAE \*89.3 3100 h,v; 240'  
MS Cleveland WCLD-FM 103.9 3000 h,v; 300'  
MO Kirksville KRXL 94.5 42000 h,v; 410'  
NV Las Vegas KRUD \*90.9 30000 (h); -180'  
NY Buffalo WBUF 92.9 91000 h, 49000 v; 580'  
NY Sag Harbor WLNG-FM 92.1 2100 h,v; 350'  
NY Syracuse WCNO 107.9 37000 (h); 490', re-  
duces ht; drops c.p. for vertical. [510'  
NC Burlington WNCB 101.1 100000h, 96000vDA/  
NC Chapel Hill WUNC \*91.5 has Dolby  
OH Dayton WDPS from \*90.1 to \*88.7 share  
time with WCXL Kettering OH.  
OH Hamilton WYCH 103.5 13500 h,v; 235'  
OH Kettering WCXL \*88.7 (not \*88.3); share  
time with WDPS Dayton.  
OH Miamisburg WRSF from \*89.7 to \*89.9 r;  
monophonic; on air on new channel!  
OK Enid KCRC-FM 96.9 76000 h,v; 185' [900'  
OK Oklahoma City KKNK 92.5 100000h, 98000v/  
KAFG 102.7 98000 h,v; 900'  
SC Manning WTWE 92.1 300' (3000 h,v)  
SC Walterboro WALD-FM 100.9 3000 h,v; 300'  
TN Kingsport WKPT-FM 98.5 95000 h,v; 1260'  
TN Memphis WSWM \*91.7 98 h,v; 160'; 4, 20mi  
TN Sewanee WUTS from 88.1 to \*91.5 (10 w)  
TX Kilgore KKTG 95.9 850 h,v; 510'  
TX Ozona KRCT 94.3 3000 (h); -55'  
UT Salt Lake City KRSP-FM 103.5 18500 h,v  
(3630'); 55, 104 miles primary, secondary  
WA Omak K252AH 98.3 to 103.9; calls to  
K280AN. WA Spokane KREM-FM 92.9 14500(h).  
PR Ponce WZAR 101.9 14000 h,v; 2590'; 49, 95mi  
**\$tereo Stations (or to go \$tereo)**  
AL Tuscumbia WVNA-FM 100.3  
CA Merced KAMB 101.5 (\$ about 1/2 the time)  
CA San Jose KSJS \*90.7, Dolby added

CO Montrose KUBC-FM 94.1, k  
FL Port Charlotte WEEJ 100.1, m  
IL Decatur WDCZ 95.1, k (open carrier SCA)  
MD Annapolis WNAV-FM 99.1  
MD Frostburg WFRB-FM 105.3  
MD Hagerstown WWCS 106.9; k (from mr)  
MD Greenfield KRFG 93.5, kp; also \$, kp on  
K296AS 107.1 Springfield MO, K240AE 95.9  
Stockton MO. NE Seward KSRR 96.9.  
NC Raleigh WKNC \*88.1  
OR Corvallis KFLY-FM 101.5, rc  
OR Newport KNPT-FM 102.5, mr (see below)  
PA Altoona WVAM-FM 100.1; no network now  
PA Clearfield WCPA-FM 93.5  
PA Indiana WGMU 103.1  
PA Johnstown WFMM 92.1, m (was r); no net.  
PA Tyrone WGMR 101.1  
WI Eau Claire WEAU-FM 104.5  
WI Portage WPDR-FM 100.1 m (from mr); E  
PR Vieques Island WZVS 98.9

## On Air and DX Ready (presumed)

AL Huntsville WLRH \*89.3 100000 h,v; 810' \$  
CA Santa Paula KAAP-FM 96.7 87 h,v; 1500'  
CA Walnut Creek KFOG-1 104.5\$, m, 10w DA  
MS Coldwater WVIM-FM 95.3 3000 h,v; 300'  
OR Newport KNPT-FM 102.5 100000h,v; 891'  
PA Gettysburg WZBT \*90.3 10  
PR Luquillo WZOL 92.1 3000 h,v; 110'  
VI Charlotte Amalie WCRN 101.1 50000 h,v;  
1500'; 48, 94 miles.

## On air with Changes (selected)

FL Jacksonville WFAM \*91.1 930 h,v; 460'  
FL Miami WLRN-FM \*91.3 92000(h); 400'  
IN South Bend WETL from 91.9 to \*91.7  
1320; 105'

MO Columbia KCOU \*89.5\$ 40000; 200'  
NM Albuquerque KRST 92.3 22000 h,v; 4110'  
NC Elizabeth City WMYK 93.7 80000 h,v; 940'  
PA Grove City WEDA-FM 95.1 6000 h; 200'  
PA Towanda WTTC-FM 95.3 3000 h,v; 125'  
VA Woodbridge WXRA 105.9 50000 h,vDA; 410'

## For mats/Netwo rks

CA Fresno KYNO-FM 95.5 r (from k); "Rock 96"  
KMJ-FM 97.9 all c (not mc)  
CA Los Altos KPEN 97.7 m (not mc)  
CA Monterey KWAV 96.9 rc  
CA San Francisco KOIT 96.5 m (not mc)  
CA San Jose KBAY 100.3 m (not rm)  
CA Santa Barbara KTYD-FM 99.9 no network;  
SCA serves as program link for AM station  
(TM); probably active only a small part  
of the time.

CA Santa Cruz KUSP \*88.9 cj  
CA Santa Rosa KZST 100.1 mc  
DC Washington WAMU \*88.5 p (from rc)

WHUR 96.3 js  
WASH 97.1 r (from rm)  
GA Carrollton WBTR 92.1 r (from rr)  
GA Cornelia WCON-FM 99.3 r (from mr)  
IL Charleston WEIC-FM 92.1 r (from gr); \$  
IL Effingham WCPC 95.7 k; \$tereo  
IL Mount Vernon WMIX-FM 94.1 m (not rm)  
IN Evansville WEVC \*91.5 p  
WVHI 105.3 Mutual (from A)  
IN Fort Wayne WLHI \*88.3 gc  
KY Bowling Green WLBK-FM 96.7 kp; mono  
KY Ft. Campbell WABD-FM 107.9 rp  
KY Henderson WHKC 100.1 rp, "KC-103"  
KY Leitchfield WMTL-FM 104.9 rk

KY Morehead WKY \*90.3 rc; add WKY to p. 85 FM Atlas: 50000 h,v; 510'; \$, P  
 KY Paducah WPAD-FM 96.9 p (from m); \$  
 MA Stockbridge WCWL \*91.3 g  
 MN Anoka KTWN 107.9 m (from c); duplication of AM; temporarily drops \$, but owner tells me \$ to be restored with the coming of a new board, turntables.  
 MO Joplin KPCG 102.5 U; music SCA  
 NY Alfred WALF \*89.7 p; WETD \*91.3 r  
 NY Baldwinsville WBXL \*90.5 rm; Mutual  
 NY Albany WWOM 100.9 r (soft rock) WHRL 103.1 m (not rm)  
 NY Jamestown WWSE 93.3 rm (from rc)  
 NY Waverly WAVR 102.3 m (not mr)  
 NC Asheville WUNF-FM \*88.1 p WBMU \*91.3 P (NPR)  
 NC Eden WEAJ 94.5 m (not k); soft music  
 NC Gastonia WGNF-FM 101.9 conflicting reports--one says k, but the most recent says r; ABC networks on SCA.  
 OH Cleveland WGCL 98.5 A WKSW 99.5 delete A  
 OH Dayton WTUE 104.7 p  
 OH West Chester WLHS \*89.9 r, monophonic  
 OK Oklahoma City KJAK 100.5 no network  
 PA New Kensington WNUF 100.7 Mutual  
 PA Philadelphia WMMR 93.3 A (from S) WIOQ 102.1 delete A  
 PA Selinsgrove WQSU \*88.9 U; back on air!  
 PA State College WXLR 103.1 rm  
 SC Greenville WESC-FM 92.5 rm (from mc)  
 TN Tullahoma WBGY-FM 93.3 r ("boogie")  
 TN Nashville WSM-FM 95.5 A (from N) WLAC-FM 105.9 delete A  
 TN Sevierville WSEV-FM 102.1 m; music SCA  
 TX Arlington KWJS 94.9 delete A  
 TX Dallas KAFM 92.5 A(BC-FM)  
 VA Blackstone WBBC 93.5 mp  
 VA Fredericksburg WFLS-FM 93.3 S (was U)  
 VA Winchester WRFL 92.5 E (from I)  
 WA Seattle KIXI-FM 95.7 delete CBS. Also no C on K292AL 106.3 Everett WA, K285AE 104.9 Olympia WA, and K277AA 103.3 Seattle WA.

WA Seattle KSEA 100.7 C (from NM); substitute C for NM on K276AC 103.1 Everett, K276AB 103.1 Pullayup and K276AD 103.1 Shelton, all WA.  
 WV Martinsburg WESM 97.5 no network  
 WI La Crosse WLSU \*88.9 cj WSPL 95.9 S (from Y)  
 WI Madison WBA-FM 101.5 C (from N)  
 WI Sun Prairie WYXE 92.1 rp; drops Dolby; no "Blue 92" nonIDs.  
**Dual-City Identifications**  
 AL York WSLY 99.3 adds Livingston AL  
 CA Lodi KWLN 97.7 adds Stockton CA  
**SCA (67 kHz) Activities**  
 AL Gadsden WQEN 103.7 adds SCA  
 CO Aspen KSPN 97.7 no SCA heard; drop listing  
 CO Breckenridge KLGT 102.3 no SCA " "  
 CO Vail KVMT 104.7 no SCA heard; " "  
 CO Windsor KUAD-FM 99.1 SCA for telemetry only; delete listing as an SCA station  
 GA Athens WJSR 104.7 delete SCA  
 GA Atlanta WABE \*90.1 delete SCA; add Dolby  
 IN Fort Wayne WPTH 95.1 farm news  
 MI Detroit WLDW 95.5 X (facsimile--same as WLVE 94.9 Baraboo WI, WCLR 101.9 Skokie IL)  
 NE Seward KSRD 96.9 adds SCA  
 NJ Newark WHBI 105.9 ethnic  
 NY Albany WGNA 107.7 adds SCA  
 NY Corning WCLI-FM 106.1 music  
 NY De Pew WBLK 93.7 Q (Physicians Radio Net.)  
 NY Garden City WLIR delete SCA  
 NY New York WKTU 92.3 delete SCA  
 WWSW 97.1 music  
 WXLO 98.7 delete SCA  
 WPIX-FM 101.9 music  
 WNCN 104.3 music  
 WRVR 106.7 ethnic  
 NY Patchogue WALK-FM 97.5 music  
 WBLI 106.1 delete SCA  
 NY Syracuse 102.9 WMRH music with commercials  
 NY Utica WOUR 96.9 Muzak  
 WKGW 104.3 delete SCA  
 OH Findlay WHMQ 100.5 adds SCA  
 OK Tulsa KCFO 98.5 gospel programs (TM)  
 SC Greenville WESC-FM 92.5 delete SCA

SC Laurens WLBG-FM 100.5 delete SCA  
 SC Seneca WBFM 98.1 delete SCA  
 TN Chattanooga WYNQ 106.5 delete SCA  
 TN Oak Ridge WOKI-FM 100.3 talk  
 WI Mauston WRJC-FM 92.1 delete SCA  
 WI Tomah WTMB-FM 98.9 talk (sends WI news items only 7-8 am, and then only part of that period; sometimes tone then, too)  
**Call Letters Assigned or Changed**  
 CA Los Angeles 97.1 KGBS (from KGBS-FM)  
 CO Lamar 93.3 KLMR-FM  
 FL Clearwater 95.7 WOKF (WTAN-FM); r (was m)  
 FL Key West 107.1 WIIS  
 FL Miami Beach 93.9 WWML (was WBUS) to 37000 h,v; 220' m; from jr.  
 FL Pensacola 107.3 WAJB (not WQMI)  
 GA Athens 104.7 WAGQ (from WJSR) "Q-105"  
 IL Chicago \*88.9 WOUJ (from WIU) \_\_\_\_\_  
 98.7 WFMT-FM (WFMT) Ga Atlanta  
 IL De Kalb 92.5 WDEK (WLBK-FM) 1103.3 WVEE  
 IL Ottawa 95.3 WRKX (WOLI) (WPLO-FM);  
 IN Kokomo \*89.1 WHSK rs \_ \_ \_  
 KY Liberty 105.5 WKDO-FM  
 LA Bayou Vista 95.3 KQKI; \$stereo  
 LA Leesville 105.5 KVPV  
 MA Boston 100.7 WTTK (WCOP-FM); k  
 MA Lowell \*91.5 WJUL (WLTJ)  
 MI Grand Haven 92.1 WFMG (WGHN-FM)  
 MI Howell 93.5 WHMI-FM  
 MO Aurora 100.1 KELE (KSWM-FM)  
 MO Sedalia 92.1 KCBW (KSSS-FM)  
 NY Glens Falls \*91.9 WGRF  
 NC Charlotte \*90.9 WFAE  
 NC Fayetteville \*88.1 WFSS  
 PA Philadelphia 98.9 WUSL (WPBS)  
 TN Memphis 97.1 WHRK (WMPS-FM) rs (was cr)  
 TN Soddy-Daisy 102.3 WZDC WY Sheridan  
 TX Amarillo 93.1 KQIZ-FM 94.9 KROE-FM  
 TX Center 102.3 KLCR  
 TX Marlin \*91.1 96.7 KLMT  
 TX Marshall \*91.1 KBWC  
 WA Seattle 101.5 KVI-FM (KETO)  
 WV Bluefield 104.5 WHAJ (WHIS-FM) ["99-Q"  
 WI Waupun 99.3 WGGQ (WLKE-FM); \$, r (was k/  
 BC Trail 106.7 CBTA (CJAT-FM); delete \$stereo

Readers' Reports and Selected FM Industry News

Contributions, both from readers of this column and from Atlas correspondents, continue to rise, with lots of welcome news. Of particular note is the wealth of new SCA news from New York state and from a reporter who took a trip with his SCA. I, too, have been traveling with SCA, and recently took a trip around Wisconsin, listening part of the way to SCA in the car on an experimental hook-up. As was the case last month, I am gonna try to group the members' reports according to the state where the reporters live in a rough pattern from east to west--so here goes.

Pinnacle Mt., New Scotland NY, is supposedly the transmitter site of Albany 95.5, 106.5, 107.7; Loudonville 88.3, Schenectady 89.1, 99.5; and Troy 92.3, but none of my maps show either the town nor the mountain. I'm interested in knowing the locations if over 25 km from the city of license of any of those stations. I've been told the Nov. '76 Ham Radio magazine has a good article on crystal filter design, which may be of interest to DXers.

WONO 107.9 Syracuse NY now operating with 37 kw, 490' and getting lotsa reports of improved reception within a 30-50 mile radius; with people in that area reporting "a perfect and quiet signal for the first time." Reports also from Ontario, Plattsburgh, and Rochester, with people noting that their "tuning meters jumped up a few points from low to high." The 10-watt WZBT \*90.3 Gettysburg PA noted on the air from noon to midnight, mono, with a signal lasting 9 miles on a GM windshield antenna. On a home system 29 miles north they appear to be a regular, but not fully quieted on a Fisher receiver. Also received there: WDCV \*88.3 Carlisle PA, on the air since mid-September.

Two former 24 hour stations are believed to no longer be 24 hours: WBPZ-FM-92.1 Lock Haven PA, WILQ 105.1 Williamsport. WMPT-FM 99.3 S. Williamsport believed to be still 24 hours. WYXE 92.1 Sun Prairie WI now signs off at 2 a. m., instead of being 24 hours.

WTAE-FM 96.1 Pittsburgh calls selves "96 Kicks" evenings with loud top forty, automated. "I can think of fewer dismal uses of 100 kw in stereo. Worst of all is their almost-immediate dominance in the market. By the way, they still duplicate WTAE (AM) daytime." [Their ERP is only 50 kw, h, v; so if they are claiming 100 kw, this is a no-no, and the FCC can chastise them!]

The reason WVAM-FM Altoona PA recently reduced its antenna height is because it abandoned plans to move its transmitter to a nearby mountain. "Instead, they have erected a 360' tower at the location of their AM station in mid-town Altoona," gone to 3 kw h, v; added \$, and gone to a k format. Total cost: \$85,000! WAAT-FM 92.1 Johnstown PA last reported off the air. But they must be back on the air now, as the owner tells me it is \$, m, and no network. New calls are WFMM. WHGM-FM 103.9 Bellwood PA did not raise its power and antenna as reported in the previous FM Atlas; will remain at 870', 250 watts. On air: WACC \*89.9 Arnold MD, p, "The Pioneer Station," at Anne Arundel Community College, 10 w. Also on air is WXDR \*91.3 Newark DE, r, U. of Delaware, 10 watts.

WCWM \*89.1 Williamsburg VA not yet on the air as of late September when our reporter wrote. Eastern NC, Roanoke, DC, Baltimore and Annapolis FM stations are strongly received in W'msburg.

WKNC \*88.1 Raleigh NC returned to the air in Oct. after a 5-months' hiatus, but now with 2.9 kw h, v; 240', stereo. Station said to be on 6:30 am to 3 am daily.

One reporter sent two pages full of FM ATLAS suggestions, some of which are: "I note in the 'by frequency' section that you have omitted program format listings, but you kept the network affiliations. If it's a question of space, I think program format info is more important than network codes. For your SCA format listings, I wonder how you were able to distinguish between Muzak (MZ) and other background music (M). I don't think you've ever discussed this in your VUD column, and surely many of your reporters must be confused on this issue. In my own case, I've found that Muzak is quite distinctive once one gets used to it. The dead giveaway is that Muzak is broadcast in distinct, quarter hour segments, with definite pauses for a minute or two every 15 minutes. . . I think you have ruined the appearance of the Station Directories by scattering 'FM Miscellany' items around. Besides being distracting, they can be downright confusing (as on p. 63, upper right). In my opinion, FMiscellany has no place in your Atlas; it lends an amateurish air to the work. . . I don't like the idea of having 10 watt educational stations listed in brackets [in the Station Directories]. It destroys column alignment . . . and you should still list "2 and 9" miles for their coverages. While this is an approximation, it is better than nothing at all and would eliminate the need for brackets. I don't think showing the licensees of 10-watt educational stations serves any purpose. . . Who cares, for example, that WSPH Baltimore is owned by some unidentified 'high school'? The section on Non-IDers, p. 109, is superfluous. It is hopelessly incomplete, and this type of data is in a constant state of flux. . . I'm glad you played down the Metric system, or at least didn't let it take over completely."

Elving answers: My data for frequency listings are no longer computerized; I only have note of station networks there. Others (DXers) have told me in the past they prefer having only network notations on those pages if there is a choice, because networks change less frequently than do program formats, and they are more distinctive in making identifications. I purposely blur the distinction between Muzak (MZ) and music (M) on SCA because when listening for a brief period of time one cannot always tell the difference; because stations occasionally change their musical suppliers [KLFM went from Muzak to Magnetrionics on their SCA (Ames IA 104.1)]; and, further, Muzak doesn't want me to publicize their stations, so I use this "disguised" publicizing of the information. Both Muzak and Magnetrionics buy the book, so I havta be careful. I am not sure I will abandon the brackets in the Station Directories and put back "2" and "9" for 10-watt coverages. I like to treat 10-watt educational FM stations and FM translators alike, because actually I think translators are far more important—they are on the air longer schedules the year 'round, and usually have much better transmitter locations and get out farther. I'd hate to show coverages for 10-watt educational stations and not do the same for translators. However, the idea of not showing licensees of 10-watters has merit, and I'll probably drop that time-consuming feature. I do not buy the idea that my listing of non-IDers is hopelessly incomplete; you should see it now! It is getting very long and unwieldy, but still I feel the information should be somewhere. One non-IDer told me to put their nonID on the maps instead of their call letters. Or the nonID could be put on the maps, maybe after the frequency, or in the By-Frequency part of the station directory. What about the FMiscellany embellishments—useless clutter or something attractive to break up the monotony of long printed lists? I had hoped for the latter. Also the miscellany items provide a cheap way of introducing the book to broadcasters. Many have bought the book because their ID was in it; others on the prospect of their id being in the next edition. I was going to run a page of FMmiscellany, space permitting, called FMorgue, using logos of long-deleted stations, of which I have plenty, but maybe I'd better not. Also, I may return the maps to a W-E format.

WOKF (formerly WTAN-FM) 95.7 Clearwater FL uses nonID "stereo 96"; r. Other nonIDers: WQYK 99.5 St. Petersburg FL now "K-99," while WLCY-FM 94.9 Tampa calls self "Y-95." WAZQ 104.7 Athens GA is "Q-105," and WQSR 102.5 Sarasota FL is "Quad 102 1/2." WBUS 93.9 Miami Beach FL laid its all-jazz format to rest and became m, as WWWL: "just what Miami needs—if they put another MOR in the area I'll toss my cookies!"



WUOL \*90.5 Louisville KY expected to be on regular schedule by now, mainly c, but with some j and talk, including NPR material. WNAS \*88.1 New Albany IN now on until 9 p.m. weekdays; later Friday nights with sports, but seems to be off the air weekends. WFPL \*89.3 Louisville KY said to be temporarily on with 83 watts until they can boost to 100 kw, as will sister station WFPK \*91.9. But I have yet to see where WFPL has received FCC authorization to make such an increase. They hope to be 100 kw (extralegally?) by Jan. 1, 1977.

The Indiana musical chairs (flip back 3 pages, middle column) will result in WBST Muncie going from 90.7 with 10 watts to 92.1 with 3 kw. To accomplish this WWHI must move from 91.5 to 91.3—something which channel 6 Indianapolis opposed, but the FCC over-ruled ch. 6 and granted the WWHI move. However, I have not seen where WBST has yet been granted permission to move to 92.1. A person who has been watching these moves with interest talked to the chief engineer of WKMO 93.5 Kokomo and got a long-winded discussion about trying to delay the thing for 3 years. "Reading between the lines, it sounded like WKMO was unhappy with its k format and had big ideas of free advertising to change." WKDQ 99.5 Henderson KY misidentifies as "Super Q." Delta H. S., Royerton IN, couldn't raise the money to apply to the FCC for an FM station, so is still broadcasting within the school only.

A station that was deleted for a short time is on the air: WBMP 101.7 Elwood IN, r. WLHI \*88.3 Fort Wayne, claims a regular radius of 5 miles, with their signal barely making it to a good tuner and antenna at 25 miles. They are on 8 am to 4 pm Monday through Friday; format mainly mc (although another reporter said it is mainly gospel and classical—gc).

The SCA of WWIB 103.7 Ladysmith WI will be music and should be in operation "in a few months." WRVM 102.7 Suring WI seems to be on sharply reduced power, seldom making it into Duluth; their SCA seems to be off the air. W288AD 105.5 Wausau WI heard up to 29 miles; seems to be nondirectional, which is very good for one watt (probably 1000'). They got out as far as did WWSP \*89.9 Stevens Point WI, which has 300 watts (h); 67'. WTCH-FM Shawano WI has not yet shifted from 100.1 to 99.3, "because of no need yet to date." However, I wrote and threatened to send a petition to deny any further extensions of their permit to change frequency to the FCC if they continue stalling. Also stalling are WJRS Jamestown KY and KPRM-FM Park Rapids MN in changing channels.

KTWN 107.9 Anoka's dropping classical music was because of heavy financial losses, owner Tom Holter told me in Madison. He also chopped some fax paper from his SCA printer at WLVE; said his office is the only receiving set-up for this facsimilie at present, so I wonder how long it will continue if no paying subscribers turn up. NBC's dropping of its NIS (O) format should affect many, if not most, FM stations carrying NBC's all-news service. Watch for stations like WNIS Chicago and WNWS New York to acquire new call letters, resume music, and resume true stereophonic operation. A few of the fm all-news stations might continue the format, using their own staffs or other sources. KXEL-FM 105.7 Waterloo IA heard with silly "X-rock" slogans. A nice article from the Minneapolis Tribune, Nov. 11, concerned MN's true community radio station, KAXE \*91.7 Grand Rapids.

KJAK 100.5 Oklahoma City, now on with increased power, calls self either "The Cat," or "FM-100." From El Paso, the best nonlocal, nonskip reception has been Midland TX, which shows how bad tropes are in the west Texas area. And that's from a reporter with good DX equipment.

One reader new to SCA listening was surprised to hear SCA come through when a station switched its main channel to monaural programming. Yes, SCA can be broadcast on a mono or a stereo station. In fact, SCA came about in 1958, while FM stereo was not authorized until 1961, so SCA was on the scene first, even though they are both correctly called "multiplexing." If anyone was listening to "meet the FCC" on KMOX (AM) St. Louis the night of Oct. 27 you might have heard the FCC man (Wally Johnson of the Broadcast Bureau) rather stupidly answer a question of mine on SCA, confusing it with stereo multiplexing, but then saying the FCC has not to date encouraged the manufacturing of radios capable of hearing the "subcarriers" for general public use. There is hope, however, that with or without FCC blessing, more of us will be able to easily get our hands on SCA-capable receivers. In the Atlas, pp 73 and 103.3 Midland TX's calls are wrong. They are KWMJ, not KMWJ. In Berkeley CA, KPFB \*89.3 simulcasts KPFA virtually 100% "except for two hours each week. This time is allotted to broadcasting the Berkeley city council meeting and is programmed separate from KPFA. KPFB is monophonic only. KPFB exists primarily to serve those areas in the Berkeley and Oakland Hills shaded from KPFA's signal."

A California reader offers more FM Atlas grist to consider. "I am a classical freak, and I believe most people seek first a station that programs a particular type of music. Hence the maps should have the programming codes instead of frequencies listed with call letters. . . Why not draw in the major interstates on the maps? . . . The listing by frequencies seems to be useless, since most FM scales are not all that accurate, especially car FMs." I already answered him, pointing out that DXers, one of the book's major audiences, do have accurate dials and like the listings by frequencies, and they would not like to see musical formats replace frequencies on the maps.

Hitting the air is "KFOG, Jr.," KFOG 104.5 San Francisco's booster on 104.5 with a claimed 37 watts ERP, "smothering Walnut Creek and infiltrating Concord as well. . . KFOG had no reportable listening in a recent ARB report in Contra Costa county, and with the booster, we are covering a

growing population in an important part of our metro area. . . We are diplexing with KKHI-FM1 95.7."

KBSU \*90.1 Boise ID expected to be on the air soon with its 10 watts from the roof of One Capital Center, which is Boise's newest skyscraper and the tallest building in Idaho. It is 14 stories high. The new KNPT 102.5 Newport OR heard with an excellent signal on DX receiving equipment, even though it had to cross two mountain ranges. This OR reporter thinks KZEL is somewhat better than KINK in programming. Regarding AM hi-fi: "What I have heard at the University of Oregon Telecommunications Dept. is that AM could be equal or better in hi fi if the receivers and transmitters were adapted to it. I myself do not know enough on the technical side to really say."

WKBN-FM 98.9 Youngstown OH now on the channel 27 antenna tower with 4500 h, v; 1370'; however, a reporter across the lake in Canada says he does not note any improvement in their signal, but has little incentive to listen any more since their m music is not much different from many other stations. CKNX (AM) Wingham ON is applying for an FM affiliate. An old-time member of the club remembers when they were "10NX" in the 1930's when it was an amateur station, later going commercial. "I as part time operator of 10BQ of Brantford knew [that the way to get ahead was by going commercial, rather than operating as an amateur], but unable to get the money we folded." More adverse comment on the logos follows from this senior citizen reporter, with comments on the FM Atlas:

"The eyes do, in spite of your own judgment, see those logos first and look for the frequencies under them. The helter-skelter distribution of the logos is very defeating and unless the stations are paying for their use, they should be isolated to one or two pages, separate from the rest as excess baggage." Another reader objected to this logo business, referring to p. 63: "WMUZ is no longer listed as Muzak but gospel." However, the logo does show what WMUZ's call letters historically stood for. . . Over the editions you are improving the map quality; around the big cities it still looks cluttered—could you use a smaller type for the low-power educational stations so the more dominant stations could stand out—easier for traveling reference." The last seems to be an excellent suggestion, and would eliminate brackets, but make for even smaller type in places—something many folks might not like. On the Canadian maps this person would like me to indicate the stations having French as opposed to English programs. New program format names. "Solid Gold" now Contempo 200. "Hit Parade" is Contempo 300.

The AM-FM discussion is fueled by the following very good set of comments from Australia:

"I have read your comments in the VUD re the quality of AM broadcasting. Quite some time ago I had a wide-range AM tuner (before FM broadcasting was ever thought of in this country) and I can report that the results were never very promising. Most of the AM broadcasts are contained within the frequency range 70-7000 hz with frequencies below 100 hz boosted by an unknown amount to provide more natural bass on those cheap transistor radios everyone seems to be using these days. . . I work part-time for a small local AM radio station just a few kilometers from here and today I went in and looked up the Australian Broadcasting Control Board specifications for AM stations. I found that the Board requires AM radio stations to broadcast a frequency response flat from 50-10,000 hz. In fact. . . most AM radio stations broadcast considerably less than this. . . 70-7000 hz. Not quite high fidelity; more like pleasant fidelity. I noted recently that Australia is to adopt the European AM band-width of 9 kHz, thereby further reducing AM's high frequencies. No, as far as I'm concerned AM is useful for talk programs but when it comes to fine music give me good FM stereo all the time."

Lars Ryden from Sweden reports he is getting a new FM portable to help check on FM broadcasting as he travels in such places as New York and Tokyo. Last summer there was some good FM skip into northern Europe from Sweden.

In FCC news, the FCC announces in the U. S. that effective May 1, 1977 there should be no AM-FM duplicated programs in markets of over 100,000 exceeding 25% of the FM station's schedule. For the first time, cities over 25,000 will be affected with 50% nonduplicated programming required. Daytime AM stations with FM affiliates are not exempted, with daytimers having to conform for the first time. Chrysler apparently backs down and is not making AM-FM radios in their 1977 cars the standard, which causes more concern about the need for all-channel radio legislation, reports the National Radio Broadcasters Association. The FCC turns down proposals to increase FM translator output powers to 10 watts east of the Mississippi River; such stations must remain 1 w. Government-industry groups within the FCC are supposedly seeking an international assignment for FM radio broadcasting in UHF, 782 to 806 mHz, to allow for more frequencies, claiming 84% commercial channels occupied and over 845 educational FM assignments in the U.S. Sounds like what Australia went thru, but on larger scale.

**Contributors:** Frank Aden, Jr., Bend OR; John W. Basehore, Mechanicsburg PA; Warren Bird, Durham NC; Andy Bolin, Charleston IL; Richard Clark, El Paso TX; Tom Cornell, Kokomo IN; Mike Dalton, Clearwater FL; W. O. Dickerman, Williamsport PA; John Ebeling, Bloomington MN; Albert Ellis, Brantford, Ont.; Doug Everitt, Enid OK; Ted Fleischaker, Louisville KY; Greg Gentling, KYD-FM Santa Barbara CA; Douglas E. Hall, publisher Hall Radio Reports, Weston CT; Charles Heffelfinger, Tampa FL; Hank Holbrook, Chevy Chase MD; Mark D. Humphrey, Houghton NY; Clarke W. Ingram, Pittsburgh PA; John M. Jefferson, Concord CA; Guy M. Lohman, Ph.D., Saratoga CA; Nick Lombardi, Atlanta GA; Clint McAuliffe, Greeley CO; Joseph M. Mangiacarne, Altoona PA; James H. Montgomery, Evansville IN; Alex Nardacci, Lee MA; John Phillips, Pleasanton CA; James R. Pickering, Williamsburg VA; David F. Reeder, KPCG, Joplin MO; Terry Robinson, Elsternwick, Victoria, Australia; Allen Rockford, Syracuse NY; Lars A. Ryden, Järfälla, Sweden; Kenneth R. Simon, West Palm Beach FL; Warren Steward, WWIB Chippewa Falls WI; Ralph Strobel, Muncie IN; Peter V. Taylor, KFOG-1 San Francisco CA; George A. Thomas, WAVR, Waverly NY; K. W. Walter, Toronto, Ont.; Larry Weil, East Rockaway NY; Nathan Williams, Oshkosh WI; Bob Zent, Huntington IN.

# WESTERN FM-DX

Steven C. Wiseblood  
707 Loma Way  
Santa Maria CA 93454  
Deadline: 10<sup>th</sup>

For FM-DXers west of the Mississippi River

Reports are always welcomed!

Doug Everitt, 1708 W. Maine, Enid OK 73701 (CDT) (28 May- 01 July)

Equipment includes: Kenwood KT-8007 tuner, 10-el FM yagi at 35' AGL

May 28

Tr 0013 KMRJ 96.9 KS Pittsburg, m  
0835 KLEK 94.5 TX Lubbock, r

May 29

Tr 0122 KRLY 93.7 TX Houston r  
0125 KIKK 95.7 TX Houston k  
0129 KODA 99.1 TX Houston m(EL)

June 3

MS 1723 very high rate

June 4

Es 1136 WDCC 89.5 NC Sanford, ID, 10w!  
1140 WMBL 95.9 NC Moorhead City, r, ads  
1143 WSFL 106.5 NC Bridgeton, ID, r  
1150 WSHA 88.9 NC Raleigh, PSA, j  
1152 WFDD 88.5 NC Winston-Salem, c  
1154 WAFR 90.3 NC Durham, s, ID  
1240 WRMJ 91.1 OH Alliance, r, ID  
1253 WYVA 94.1 VA Yorktown, ID

Log totals now at 208!

A few scattered openings thru late August got into FM, and TV Es was still going sporadically thru October here, though reports indicate it died early elsewhere. Tr hasn't amounted to much this fall, but maybe something will surprise us! I may do some more MS work on FM this winter so all is not lost as far as my FM DXing goes.....Hope everybody is having good cx. 73 and best of DX, Doug

June 3 (Continued)

190 Es 1303 WEXM 107.5 VA Exmore, Ads  
280 1314 WTRR 100.7 MD Westminster, Ads

June 7

480 Es 1555 WKIM 102.5 SC Charleston, r  
480 1604 WZAT 102.1 GA Savannah, nx  
480 1611 WRAS 88.5 GA Atlanta, ID  
1831 KEYA 88.5 ND Belcourt, r  
1914 WDBN 94.9 OH Medina, ID, (EL)m  
1917 WAEZ 97.5 OH Akron, (EL)m

June 21

Es 1503 WACG 90.7 GA Augusta, Announcements

June 27

Es 2055 WQDR 94.7 NC Raleigh, Ads  
2111 WPGC 95.5 MD Morningside, r

July 01

Es 1015 WUSF 89.7 FL Tampa-St. Petersburg  
1020 WOVV 95.5 FL Ft. Pierce  
1031 WEAT 104.5 FL W. Palm Beach



Pat Dyer, 5315 Silvertip Drive, San Antonio TX 78228 (7 Sep- 11 Oct) (CST)

17 Es 1902 WSKU? 88.9	KY Richmond, j	995	17 Es WKQQ 98.1	KY Lexington, Ad (time:1904)
1902 WFPL?	KY Louisville	945	1905 WDNS? 98.3	KY Bowling Green, football
1902 WMKY?	KY Moorhead	1050	1905 WSIP? 98.9	KY Paintsville (MAX-MUF)
1903 WKYQ?	KY Paducah, nx	775	1908 WGGC 95.1	KY Glasgow, local ad
1903 WAMX?	KY Ashland, bb game		1910 WDOC 95.5	KY Prestonsburg, area Ad

Though this was a short Es opening, it was one of the best September Es openings into the U.S. in a long time. Usually, FM Es in September means Latin America. At this point, it looks like I'll be concentrating on the TV for the upcoming meteor showers. (You and Doug Everitt, HI -ye ed) Nice TP's with beautiful ID's in colour are a whole lot easier on the nerves. (I'll believe it when I see it- ye ed).

Steven C. Wiseblood, 707 Loma Way, Santa Maria CA 93454 (15 Aug- 16 Nov) (PDT/PST Oct. 31+)

Well, by the time you read this the holiday season will be well under way. Not only is December an exceptionally good month for meteor showers but also will be a good month for the mid-winter Es peak. Mid December through all of January is normally a good time to watch channels 2 through 4 for Es goodies. It has been speculated that the reason for a minor Es peak in late December is due to slopover from the Southern hemisphere, which just happens to be enjoying their summer Es peak December-March. The minor Es peak in North America during late December could also be caused, or induced, by strong meteor showers. I lean, more or less, towards the meteor inducement theory myself. But as far as the summer Es season goes in the North American continent, few (if any) Es openings are directly resultant from meteor showers. And now my report:

October 4<sup>th</sup>: Good ducting noted towards San Francisco, KBBF 89.1 Santa Rosa w/Latin-SS format, good stable signals from KFMR 104.9 Fremont w/religious preachings, KSOL 107.7 San Mateo w/soul. KKHI 95.7 San Francisco in with Classical format. KDPC 102.1 San Francisco also with Classical music, strongest signal ever seen.

October 15<sup>th</sup>: KKYS 107.5 in Hanford, finally on the air w/lite-pop mx, definately an mr station. (middle-of-the-road/rock for those of you who still haven't got the abbreviations used in Bruce Elvings column right!)

Thats all I have time for this month, I'll be able to do another whole page next month, so GET ON THE BALL and send those reports directly to ME!

73, Steve

# NORTHERN FM-DX

Fred Nordquist  
7945 Boxford Road  
Clay, NY 13041  
Deadline: 10th

December 1976

For FM-DXers in the states IA MN WI IL MI IN OH PA NJ NY VT NH CT RI MA ME and provinces of ON QE NB NF NS and PEI. Send in your reports today!

FM DX has been almost non-existent in the last 30 days, due to the unbelievable cold weather conditions. It has been 9°F below normal here and surely has put a damper on any tropo buildups. Only two reports were received from reporters this period. I know some of you keep busy at the dials regardless of conditions, so send in your reports even though there may not be much to report. By the time you receive this issue, you should be in the midst of the December Geminids MS and winter Es seasons -- so keep alert for DX and promptly report your results.

Michael Hogan - 9224 Cottage Grove Ave. - Highland, IN 46322 (CST)

10/11 1100 WYEZ 100.7 IN Elkhart-South Bend w/ads

Conditions (cx) are the worst since about this time last year. When cx improve, more DX-ing will be attempted. 71 stations logged now with 21 in the educational band. 73's and good DX - Michael.

Joseph Fela - 150 Robert Place - S. Plainfield NJ 07080 (ELT)

Eq: RX - Pioneer SX-828. Ant - JFD-FM-10A w/rotor at 35' New underlined. ?=Tentative

8/22 Es 1810 Tune-in MUF over 107.9	9/3 Tr 2115 WEZF-92.9 VT Burlington, ID, EZ
1812 <u>WCFP</u> -92.7 FL Stuart, ID	2200 WEIV-103.7 NY Ithaca, CEN, ID
1816 <u>WTUN</u> -100.1 AL Selma, SID, k	2215 <u>WBEN</u> -102.5 NY Buffalo, L&C, ID, r
1818 Unid-105.9 HP, mighty-106	2216 <u>WVOR</u> -100.5 NY Rochester, ID, r
1820 <u>WHMA</u> -100.5 AL Anniston, PSA, m, ID	2222 <u>WWDL</u> -104.9 PA Scranton, m, rare
1830 <u>WRPM</u> -107.9 MS Poplarville, m, ads	2227 <u>WBIV</u> -107.7? NY W'field, CEN//WEIV
1835 <u>WXEL</u> 105.3 LA Slidell, ID, s	2305 <u>WMIV</u> -95.1? NY Bristol, CEN//WEIV
1844 <u>WEAT</u> -104.5 FL W. Palm Bch, m, ID	2320 <u>CFCA</u> -95.3? NY Kitchener, Canadian
1926 <u>WJDB</u> -95.3 AL Thomasville, ID, r	rx items. CKGL-96.7 L&C same time.
1931 <u>WBYU</u> -95.7 LA New Orleans, \$96, EZ	2342 <u>CKQS</u> -94.9? ON Oshawa, Expos BB
	2351 <u>WNWZ</u> -92.5 NY Rochester, all-nx

No DX to speak of since 9/3. October was completely dead. 73. Joe

Fred Nordquist - 7945 Boxford Road - Clay, NY 13041 (ELT)

Eq: RX - Heathkit AJ-15. Ant - JFD LPL-FM10A at 45' AGL

10/18 Tr 1910 <u>WGPR</u> -107.5 MI Detroit, s, (355)	11/6 MS 2340 Unids-99.1 many bursts, c, j, m
1911 <u>WJZZ</u> -105.9 MI Detroit, j, (355)	formats.
1913 <u>WNIC</u> -100.3 MI Dearborn, r, (355)	11/9 GW 2000 <u>WRCU</u> -90.1 NY Hamilton, hrd w/
10/27 Tr 2018 <u>WLDL</u> -95.5 MI Detroit, m, (355)	incr. pwr 1000w., mono.
	11/12 Tr 2030 <u>WCRK</u> -103.3 OH Cleveland, g, (300)

Rotor burned out w/antenna fixed now to the WSW - so I may not be able to get fixed until the snow season is over. 73 - Fred.



## DESIGNED FOR DXers...

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## WTFDA's T.V. STATION GUIDE

## Only \$3 from HQ

# SOUTHERN FM-DX

EDITOR:  
David Cox

FOR REPORTERS EAST OF THE MISSISSIPPI AND SOUTH OF THE MASON-DIXON-LINE

Mail reports to: 2007-E Brandywine Ct.  
Birmingham, AL 35216

Next deadline:  
December 10, 1976

The cool, clear and dry weather which dominated the South through the month of September continued to prevail through October, getting only cooler and drier. The conditions took their toll on DX as only one of three reporters this month had any October loggings to report, and these stations were received, most likely, because of the use of a new receiver. Another reporter says this fall is even worse than the poor years of 1974-75, with tropo being nonexistent this year.

Thomas J. Yingling, 221 Pinewood Road, Baltimore MD 21222 EDT

Now that the Southern FM Column is back, I think its time I report something. Receiver is a Pioneer TX-9100, with a Lafayette 10-element yagi up 45 feet. Report from June 26 to August 24, 1976. New stations underlined.

26 June Es		27 June Es		28 June trop		29 June trop		30 June trop		1 July trop		15 July trop		26 July trop		2 August Es	
1600	ZBM	89.1	Hamilton, Bermuda 900 miles, with Hit Parade	1050	GMQ	90.5	Havana, Cuba 1200	2030	WPCV	97.5	FL	Winter Haven 825,k	0100	WWOC	94.3	NJ	Avalon 100,m
1645	ZFB	94.7	Hamilton, Bermuda 900	1100	WJAX	95.1	FL Jacksonville 725,r	2100	WRMP	98.3	FL	Titusville 850,m	0055	WRLB	107.1	NJ	West Long Beach 150,r
1700	WAFG	90.3	FL Ft. Lauderdale 950,g local WBRS 95.1 Baltimore off til 6-28 resulting in the following tropo	1130	WRBQ	104.7	FL Tampa 800,r	2130	WFLA	93.5	FL	Tampa 800	1700	WRSU	88.7	NJ	New Brunswick WAMU local on 88.5 off air
2010	WAVY	95.1	NJ Atlantic City 100, ID as "Wave 95"	1140	WIGL	107.7	FL Miami 1000,k	2145	WGYL	93.5	FL	Vero Beach 850,m with spot for Indian River Bank	1755	WGRH	90.5	MD	Williamsport 90,g \$
2030	WXIL	95.1	WV Parkersburg 300,r	1145	WLCY	94.9	FL Tampa 800,r	2200	WAVV	100.7	FL	Tampa 800,m	1800	WJRZ	100.1	NJ	Ship Bottom 100,r
2045	WEZV	95.1	PA Bethlehem 120,r "EZ 95"	1155	WVFM	94.1	FL Lakeland 800,m	2215	WKOS	100.3	FL	Plantation Key 1100,m	2 August Es				
2100	WRNS	95.1	NC Kingston 280,k	1200	WYRL	102.3	FL Melbourne 825,m	2225	GMQ	90.5	Havana, Cuba 1200	1600	WMEZ	94.1	FL	Pensacola 875,m	
2200	WMSP	94.9	PA Harrisburg 110	1343	WPGV	97.5	FL Winter Haven 825,k	2230	WDIZ	100.3	FL	Orlando 850,r	1630	WPCS	89.3	FL	Pensacola 875,g
2230	WCHM	95.1	PA Chamberburg 100	1350	unID	97.5	French nx?	2245	WNSL	100.3	MS	Laurel 950,r	1645	WJVM	94.3	IL	Stereling 750,r
27 June Es				1420	KULM	98.3	TX Columbus 1300,k	2250	KKKK	100.3	KS	Cosby 1300 w/Royals-Twins game	1700	KBRK	94.3	SD	Brookings 1150,r
1050	GMQ	90.5	Havana, Cuba 1200	1440	KARO	107.1	AR Texarkana 1050,r										
1100	WJAX	95.1	FL Jacksonville 725,r	1450	WSJC	107.7	MS Magee 900,k										
1130	WRBQ	104.7	FL Tampa 800,r	1500	KFRA	105.5	LA Franklin 1100, freq. changed from 95.3										
1140	WIGL	107.7	FL Miami 1000,k	1515	KOAX	105.3	TX Dallas 1250,m										
1145	WLCY	94.9	FL Tampa 800,r	1530	KFMZ	98.3	MO Columbia 850,r ID as "FM-Z"										
1155	WVFM	94.1	FL Lakeland 800,m	1545	KUDL	98.1	MO Kansas City 950,s										
1200	WYRL	102.3	FL Melbourne 825,m	1600	KRNA	93.5	IA Iowa City 800,r										
1343	WPGV	97.5	FL Winter Haven 825,k	1615	KCHF	93.5	SD Sioux Falls 900,r										
1350	unID	97.5	French nx?	1700	KNFB	101.9	OK Oklahoma City 1150, over local WLIF										
1420	KULM	98.3	TX Columbus 1300,k	1715	KTEN	93.3	OK Ada 1125,r										
1440	KARO	107.1	AR Texarkana 1050,r	1730	KWIC	107.7	TX Beaumont 1150,p										
1450	WSJC	107.7	MS Magee 900,k	1745	KAMO	94.3	AR Rogers 950,m										
1500	KFRA	105.5	LA Franklin 1100, freq. changed from 95.3	1800	WJBI	101.5	MS Clarksdale 980,k										
1515	KOAX	105.3	TX Dallas 1250,m	1815	KEPT	96.5	LA Shreveport 1050,r										
1530	KFMZ	98.3	MO Columbia 850,r ID as "FM-Z"	1850	KRAV	96.5	OK Tulsa 1050, Hits of 70s										
1545	KUDL	98.1	MO Kansas City 950,s	1920	WYNK	101.5	LA Baton Rouge 1000,k										
1600	KRNA	93.5	IA Iowa City 800,r	1930	KAYD	97.5	TX Beaumont 1050,r										
1615	KCHF	93.5	SD Sioux Falls 900,r	1942	KREB	106.1	LA Monroe 1000,k										
1700	KNFB	101.9	OK Oklahoma City 1150, over local WLIF	1955	KPEL	99.9	LA Lafayette 900, over WFRE										
1715	KTEN	93.3	OK Ada 1125,r	2020	WAFB	98.1	LA Baton Rouge 950,r oldies										
1730	KWIC	107.7	TX Beaumont 1150,p	2030	KSLI	96.9	LA Alexandria 1000,m										
1745	KAMO	94.3	AR Rogers 950,m														
1800	WJBI	101.5	MS Clarksdale 980,k														
1815	KEPT	96.5	LA Shreveport 1050,r														
1850	KRAV	96.5	OK Tulsa 1050, Hits of 70s														
1920	WYNK	101.5	LA Baton Rouge 1000,k														
1930	KAYD	97.5	TX Beaumont 1050,r														
1942	KREB	106.1	LA Monroe 1000,k														
1955	KPEL	99.9	LA Lafayette 900, over WFRE														
2020	WAFB	98.1	LA Baton Rouge 950,r oldies														
2030	KSLI	96.9	LA Alexandria 1000,m														

-continued-

## Yingling cont.

19 August Es  
 2000 WWCS 106.9 MD Hagerstown 90,m new  
 call for old WARK  
 2030 WFRB 105.3 MD Frostburg 100,k  
 2100 WOMP 100.5 OH Bellaire 250,r  
 2200 WAEZ 97.5 OH Akron 280 w/EZ-97 IDs  
 2230 WQVE 102.5 PA Pittsburg 210,r  
 2400 WTAE 96.1 PA Pittsburg 210  
 20 August Es  
 0030 WMRA 90.7 VA Harrisburg 155, tropo  
 with program from the "Basement"  
 1700 KSUC 88.3 TX Keene 1250  
 1730 KUHF? 88.7 TX Houston WAMU slopover

22 August Es  
 1630 WQUE 93.5 LA New Orleans 1100,r  
 automated in \$  
 1700 KWIL 107.7 TX Beaumont 1150,r  
 1730 KCIL 107.1 LA Houma k  
 1745 WATA 97.3 FL Miami 1000, talk show  
 1750 WPCV 97.5 FL Winter Haven 850,k  
 24 August tropo  
 0015 WAAT 92.1 PA Johnstown 150,m  
 0030 WRCV 92.1 PA Mercerburg 100,r  
 0100 WOMP 100.5 OH Bellaire 250,r  
 0200 WTSR 91.3 NJ Trenton 120 w/ s/off  
 0205 WDVL 92.3 NJ Vineland 90,r  
 0215 WGBT 101.3 PA Scranton 180,r

Anyone who missed the June 27/28 Es should be sick, for on the 27th I must have logged at least 40 new loggings, with 60 in the 2 days of FM skip. MUF most of the time above 100 mhz. Even my TV ch7 was showing some signs, though no ch7 loggings yet. I never saw it so good!! My antenna for FM soon will be a Channel Master Stereo Probe-9, once the weather ain't so windy. I'm thinking about using the old 10-element yagi with the new one, with the old one vertically polarized. There is no pre-amp on the antenna now, for I don't need one. 73s for now. I hope my report ain't too long. (Thanks for reporting, Tom, and don't worry about the length of the reports. Keep up the good work as editor of the FM QSL Corner .. dsc)

Mike Dorner, Jr., 1409 Hymelia Ave., Metairie LA 70003 GDT

Equipment is Heath AR-13A, using a CADCO preamp and a two-driven element Archer FM antenna at approximately 20 feet.

Aug. 10: 0158 KPFT Houston with acid rock, \$, hvy promos for supporting station. Pacifica man in New York tells me that station is having a "very rough time" and seems to have finally turned the corner with a long road lying ahead of it... A fantastic tropo opening to the north—stretching into Arkansas, Missouri and Tennessee, a rare occurrence—lasted through the night of Aug. 11, with an opening into Memphis all day long both days! 0708 KMMU 90.7 St. Louis, \$, news, wx, "Morning Music" program and promo for St. Louis Symphony; station stayed in for 36 hrs. straight! 0714 KASU 91.9 Jonesboro AR with stn promo, \$, mx,wx, magazine type programming; like KMMU, stn was in for 36 hrs! 0730 WKNO 91.1 Memphis with NPR Mod Arts on Emily Dickinson, jazz selections; in for 36 hrs. This station uniquely comes in every afternoon about 1600 faintly and fades in and out just at audibility level until sundown; no other Memphis stn, and no other stn north of Jackson does this; quite weird! 0748 KBLA 91.3 Columbia MO, new stn, promo for Opera Festival, mx, sports (#469) ... 2159 WSIE 88.7 Edwardsville IL, NPR Recital Hall, \$, "Closer Look" PSAs, "Jazzfest" program at 2200 (#470) ... 2259 WKMS 91.3 Murray KY with rock mx, 2310 PSA from Paulist Fathers, \$ ... I concentrated only on educational band and these, apart from a few regulars, represent the only contacts ... Aug. 13: 2158 WMBQ 92.1 Brookhaven MS, new stn on air, rock, \$, ID "Brookhaven's first stereo FM stn", ABC Info net nx ... Aug. 14: 0755 KCHU Dallas 90.9 cl mx, ID "Your listener supported station," and heavy dosage of promos begging support—station consistently does this; must be having a rough time of it; 0907 black program, soul mx ... Aug. 21: WAMU 88.5 Washington DC with bluegrass mx 0915, ID, Wiley Deacon anncr. Still in at 1000 ... 1000 WXPB 88.9 Philadelphia PA calendar of events with Griffin underwriter anncment; promo for Poet's Corner; \$ program "Beat Generation" ... KESD 88.3 Brookings SD, familar stn, with "Wash. Week in Review" ending and ID. Last Es opening for the season, which, apart from end of July—early August, was very poor. Trop has been nonexistent this fall. Stns in even the poor years of 1974-75 are no longer in—how worse can things get? 73.

Bill Feidt, 8852-L Spiral Cut, Columbia MD 21045 EST

The big news here is the acquisition of the Heathkit Modulus tuner-preamplifier with digital readout. Results so far are quite favorable with increased sensitivity and selectivity seeming to justify the investment of both money and building time & effort. My only regret is that I'll really have to wait til next season to put it through its paces. Loggings since my last report; all are new:

Aug. 21  
 tr 0902 CJOM 88.7 Ont. Windsor nx,wx,& 395  
 ID; weak to fair; first Canada  
 1001 WMRA 90.7 VA Harrisonburg P, ID 115  
 1130 WVPW 88.9 WV Buckhannon ID for 173  
 WV Public Radio // WVPB  
 -Bill's report continued on next page-

Aug. 21 (cont.)  
 tr 1730 WSKG 89.3 NY Binghamton P & 211  
 local ID, above others briefly, PM  
 tropo this long rare occurrence  
 1800 WCRH 90.5 MD Williamsport g 55  
 now semi-local and another good  
 channel "semi-shot"

## Feidt (cont.)

Aug. 22	tr 0700 WOUB 91.3 OH Athens s/on w/SSB 283	Oct. 24	tr 1545 WTPA 104.1 PA Harrisburg m, ID 72
	vy gd level; Ohio U. radio		as "stereo 104"
	0715 WKWI 101.7 VA Kilmarnock this 104		2300 WVNJ 100.3 NJ Newark m, nx on 167
	freq. vy tough since power increase at		hr., WFAN off early
	WLIF 101.9		2302 WUFM 100.1 PA Lebanon r, s/off 79
Aug. 23	tr 0458 WRAC 102.7 PA Williamsport s/on 144		2305 WYII 95.9 MD Williamsport r, 55
	// 1400kc AM		local WISZ off
	0502 WMMK 102.9 PA Philadelphia "Magic 102	Oct. 25	tr 0025 WYDD 104.7 PA Pittsburg s, nx 172
	Radio", was WPEN		on hr., strong w/ deep fades
Aug. 24	tr 0300 WRCV 92.1 PA Mercersburg-Upton 76		0057 WDVV 102.5 PA Pittsburg 172
	"\$ 92", vy gd level on opp. bearing		0855 WKOK 94.1 PA Sunbury k, over 112
	from WDYL		more normal WYSP; slogan is "For the
Aug. 29	tr 0700 WUNC 91.5 NC Chapel Hill c, ID 261		best in country, it's K.O. Kountry"
	0905 WPIT 101.5 PA Pittsburg weak & 172	Oct. 28	tr 2035 WJLK 94.3 NJ Asbury Park r 160
	mixing w/WAYZ with nx. In defiance of		with call letter jingle
	Murphy's Law, it faded up for ID & tape	Oct. 29	tr 0550 WFTV 99.3 VA Front Royal sur- 75
Oct. 15	tr 0040 WRHY 92.7 PA Starview r,\$ 68		facing briefly w/ID; this channel vy
	1255 WKSL 94.3 PA Greencastle m, news 65		bad because of WNAV-WGAY squeeze
	on the hr.; fairly w/new rcvr		That's about it for this go round.
	1840 W276AB 103.1 MD Frederick weak 34		73 es DX to all.
	but regular; first translator here;		
	slaves WFSI 107.9		

In the future, reports in this column will be presented in a two column format similar to that used in Bill Feidt's report this month. This is being done for several reasons, all with the hope of making a better VUD. All reports submitted to this column will be restructured to the two column format, but I would appreciate it if reporters continued to use the single column format when reporting as I have my own margins and tab settings set up.

As you can see from the reports, DX this fall has been very poor indeed. Maybe we'll be lucky and this will be the calm before the storm this coming Spring, hi. At any rate, let us know how DX is in your locale. Til next month,

73s and Best of DX, *Dave*

## TV QSL CORNER

Paul D. Traska  
64 Weaver Avenue  
Buffalo NY 14206

NOTICE: This will be my final column. I was informed by our editor-in-chief, Clarke Ingram, that there have been complaints about the number of editors and columns in the VUD, and it was decided that both QSL columns be merged to form a single new "QSL Corner." All contributions should be sent to Tom Yingling (presently FM QSL editor) beginning next month.

I'd like to take this time to express my thanks to the many contributors to the column under my brief editorship, which helped to make the TV QSL Corner interesting. Also special thanks to Ken Simon for giving me the opportunity to edit the column.

Now to the QSL's, or should I say to the one QSL listed. Would you believe there were no contributors this month---it must have been intuition. The QSL below was contributed by myself.

VA WVIR ch 29 Charlottesville--P.O. Box 751, 223 E. Main St., 22902--L & M, Harold B. Wright, Jr, VP & GM. 54 days. (PDT)

Goodbye and 73's, *Paul*

# FM QSL CORNER

Thomas J. Yingling, jr.  
221 Pinewood Road  
Baltimore, MD 21222  
Phone # 1-301-282-5649  
Deadline: 15th

- Canada Ontario CFCA 105.3 Kitchener, 864 King St, letter form for CKCO-1-4 TV, CFCA-FM, CKKW-AM, with correct box checked, unsigned, in 6 months. KRS
- AR KKYK 103.7 Little Rock, 1001 Spring St. 72203, letter from Jim Cope, Dir of Eng. RTE  
KFIN 107.9 Jonesboro, letter, with signer unreadable. RTE
- IL WOKZ 100.3 Alton, P. O. Box 615, 62002, letter from Al Abert, Operations Eng. RTE  
WKSI 102.3 Eldorado, Box 10, 62930, letter from Robert Unsell, GM. RTE  
WEMO 101.3 East Moline, 1513-7th St. 61244, letter from Jack Ramser, GM. RTE  
WHTT 96.9 Moline, 1111 E. River Dr. Box 3788, letter from Paul E. Blair, CE. RTE  
WAAG 94.9 Galesburg, 154 E. Simmons St. 61401, letter from Jim Thomson, CE. RTE  
WMBI 90.1 Chicago, 820 N. La Salle St. 60610, letter from Hank Voss, Eng in Charge. RTE  
WRAJ 92.7 Anna, Box 120, 62906, letter from manager, no name. RTE  
WMRY 101.1 East St. Louis, Box 9300, Rte 460, Belleville, IL 62223, letter, no signer.  
WDDD 107.3 Marion, 300 Public Square, 62959, letter from gen. man. RTE  
WEEE 92.7 Taylorville, Frisina Motor Hotel, 62568, letter from gen. man. RTE  
WSOY 102.9 Decatur, 1100 E. Pershing Rd, Box 2250, 62526, letter from Larry Ward, CE  
WSEI 92.9 Olney, Drawer L, 62450, letter from Donald Schnell, CE. RTE  
WFRX 92.7 West Frankfort, Box 128, 62896, letter from CE, no name. RTE
- IN WNAP 93.1 Indianapolis, 2835 N. Illinois St, 46208, letter from CE. RTE  
Very cordial letter with note about old friend in area, reply in 2 weeks from Bob Brockway, CE. KRS
- WWKI 100.5 Kokomo, 304 N. Main St. 46901, letter & map from unreadable name president after 1 follow-up report. RTE
- WXAX 104.7 Elkart, Country Road, 46514, letter signer name unreadable, only last name of Moore, General Manager. RTE
- WRWS 107.3 Warsaw, Times Bldg. 46580, letter & map from Steven D. Crum, CE. RTE  
WISU 89.7 Tette Haute, Indiana State University, 47809, letter from Donald L. Mier, Chief Engineer. RTE
- WGRT 107.1 Danville, P. O. Box 301, 46122, letter & bumper-sticker from Wayne B. Miller, Chief Engineer. RTE
- IA KCCK 88.3 Cedar Rapids, 6301 Kirkwood Blvd. SW, 52406, letter & returned my stamps, but no signer. RTE
- WMT 96.5 Cedar Rapids, letter from Robert J. Kucera, with coverage map from CE. RTE  
KFMH 99.7 Muscatine, P. O. Box 116, 52761, letter & map from David Mety, CE. RTE  
KCOG 98.7 Centerville, 317 1/2 N. 13th St. 52544, letter & map from Mike O'Connor, GM. RTE  
KRNT 102.5 Des Moines, Box 1350, 50305, letter, no signer after follow-up report. RTE
- KS KSKG 99.9 Salina, letter after follow-up report from manager, no signer, RTE.
- KY WHIC 94.3 Hardinsburg, P. O. Box 203, 40143, letter & coverage map from Edmond Severs, Announcer. RTE
- WHOP 98.7 Hopkinsville, P. O. Box 709, 42240, letter & map from CE. RTE  
WAAW 103.7 Murray, Box 309, 42071, letter Paul Whitney, Consulting Eng. RTE  
WVEZ 106.9 Louisville, 100 E. Liberty St. 40202, letter from CE, no name. RTE  
WNNS 97.5 Louisville, P. O. Box 1084, 40201, letter & map, unreadable signer. RTE  
WKYQ 93.3 Paducah, letter from chief engineer, no signer. RTE
- MN KEYE 102.1 St. Paul, 611 Frantenac Place, 55104, letter & map after follow-up report from Production Engineer, no signer. RTE
- MO KEZK 102.5 St. Louis, letter & qsl card from chief engineer, no signer. RTE  
KKSS 107.7 St. Louis, 1215 Cole St, 63106, letter & map from CE. RTE  
KWPN 93.9 West Plains, letter, map, plus a small screwdriver (?) from station manager & chief engineer. RTE
- KFUO 99.1 Clayton, letter & qsl card from John Fischer, CE. RTE
- TX KRLY 93.7 Houston, 3935 Westheimer, Suite 94, 77027, letter & 4 bumper-stickers with logo KRLY FM 94. Reply in 15 days from Bill Cordell, CE. SS

Reporters are KRS-Kenneth R. Simon of West Palm Beach, FL, SS-Scott Sampson of Orion, IL using a Wards Airline model 1465 multiband, and RTE-Richard T. Eddie of St. Louis, MO who is a new reporter using a Pioneer SX-939 with an indoor antenna.

In January, 1977 will be the new QSL Corner. The QSL Corners will be a single column. That will be all qsl reports for tv, fm, and utility dx qsl's all in one. The new column editor will be me. So send all qsl reports to the above address. I just found that I got the job from Clarke Ingram, editor-in-chief. So I want to encourage all members to send in a report to the QSL Corner. I want to encourage especially all utility dx'ers who dx the pagers, police & fire dept's to send in their qsl details. The utility dx qsl's been ignored so long, that most members may not know how to report to these stations.

I got a new Channel-Master Probe-9 FM Yagi up now, with better reception than before. 73's

*Tom*





## INEXPENSIVE WAVETRAPS FROM TRANSMISSION LINE

### Adjacent Channel Interference

All DXers are familiar with adjacent channel interference; interference caused by a strong signal from a local transmitter close in frequency to the selected channel. On TV, for example, the video carrier is only 1.5 MHz greater than the audio carrier of the lower adjacent channel (except between channels 4-5, 6-7, 13-14). Often, the audio carrier from a strong local produces a moving herringbone pattern of bars that "beat" with the video carrier of the higher TV channel. Video and audio interference from a strong local can dominate several adjacent TV channels (often interfering with higher channels via harmonics) and make identification difficult. Because some VHF communication receivers have high sensitivity but poor selectivity (usually due to a untuned RF stage), the signals from even low-power, narrow band, local transmitters often "spill over" for several MHz.

Selection of a highly directive antenna or an antenna for a small part of the band, careful antenna orientation, or fine-tuning adjustment might reduce or eliminate this problem. But most DXers use a single broadband antenna and must aim it toward the strong local to receive the weaker adjacent station; consequently, strong locals (or sometimes strong E-skip or tropo signals) simply cannot be reduced enough to permit identification of an adjacent weaker signal unless special techniques are used.

### Wave Traps

Commercial wavetraps are available---although seldom advertised in the popular electronic catalogues---for attenuating (reducing) by 100 times or more the signal strength of a specific frequency in the TV/FM band. However, since these traps are usually intended for permanent mounting and are quite expensive, they are impractical for most DXers.

(Those DXers who use the Jerrold "Trap Ease" tunable traps know that they are "worth their weight in gold." But, unfortunately, these traps last appeared in about the 1965 Lafayette catalogue and are no longer available.)

### Traps From Transmission Line: Theory

Ordinary transmission line, when cut to  $\frac{1}{2}$  or  $\frac{1}{4}$  wavelength of the interfering channel (and corrected for the velocity factor of the specific line) and attached correctly at the receiver can reduce the interfering signal as much as 10 times and, therefore, reduce a mild case of adjacent channel interference. Such a device is called a stub. Since the stub can have high Q (be sharply tuned), it can be cut to either (1) the center frequency of a TV channel to reduce the audio and video about equally or (2) to the actual carrier frequency for maximum attenuation. (In the second case, however, some attenuation of the adjacent channel might occur.)

This theory of stub operation is quite simple. A  $\frac{1}{4}$  wavelength open or  $\frac{1}{2}$  wavelength shorted stub is actually a series resonant circuit that operates like a simple ON/OFF switch. This means that, when a stub is attached across the antenna input to the receiver, it appears as a closed switch (short) at the resonant (interfering) frequency and, consequently, will reduce the signal on that frequency. At frequencies other than resonance, the stub acts like a switch in the OFF (or open) position, and those frequencies will pass into the receiver as if the stub weren't there.

Since the stub described is actually a circuit tuned to the interfering channel, any type of transmission line can be used; impedance is unimportant. However, since 300 ohm flat line is cheap and easier to work with than tubular line, its use as a stub will be described. (Use of other lines is described later.)

The calculations in Table 1 are for a  $\frac{1}{2}$  wavelength stub based on a velocity factor of 0.83, since the velocity factor of most flat line varies from 0.80 to 0.85. Also, a  $\frac{1}{2}$  wavelength shorted stub is preferred to the shorter  $\frac{1}{4}$  open stub (at least initially) since it is easier to short the  $\frac{1}{2}$  wavelength stub at various points until the correct length is determined than to "clip off" short lengths of line for an open stub and possibly pass the correct point.

The approximate lengths shown in Table 1 are for the center of the TV channel to be attenuated. To compute a length for another frequency, use the formula on the right.

Channel 2 = 86"	Channel 9 = 25-3/4"	Length in inches of $\frac{1}{2}$ wave stub = $\frac{5900V}{F(\text{MHz})}$
Channel 3 = 78"	Channel 10 = 25"	
Channel 4 = 71"	Channel 11 = 24 $\frac{1}{2}$ "	V = velocity factor of line
Channel 5 = 62"	Channel 12 = 23 $\frac{1}{2}$ "	F = frequency of interfering channel in megahertz
Channel 6 = 58"	Channel 13 = 22-3/4"	
Channel 7 = 27 $\frac{1}{2}$ "	Channel 14 = 10 $\frac{1}{2}$ "	
Channel 8 = 26 $\frac{1}{2}$ "	Channel 83 = 5 $\frac{1}{2}$ "	(TABLE 1)

### Building The Trap

To build the trap for a given frequency, proceed as follows:

- 1) Tune to channel being interfered with and adjust for minimum interference from the interfering station. (Some interference must remain, however, so that the effect of the trap can be noted when probing for the correct length.)
- 2) From the chart, locate the length of the stub for the frequency to be attenuated, add two inches to this total (for adjustment), and cut stub. For example, if channel 3 is interfering with selected 2 or 4, cut stub for 78" + 2" = 80".
- 3) Carefully strip off one inch of insulation from each conductor at one end of the stub; this is the "terminated" end that will attach to the antenna terminals at the receiver. Strip off four inches of insulation from other end; this "unterminated" end will later be shorted for the correct length. Take care that the conductor is not cut. Conductor length must be equal.
- 4) Attach the terminated (one inch) end to the antenna terminals in parallel with the existing antenna as shown in Figure 1. Stub should be fully extended and as far from the antenna lead-in as possible for best effect. Repositioning it after tuning may "detune" it. NOTE: The stub can actually be connected at any convenient point in the antenna line (at UHF converter, for example). However, if a mast mounted preamp with set side power supply is used, connect the stub at the receiver only; connecting it at the antenna side of the power supply will cause the fuse to blow when the stub is shorted.
- 5) With a small piece of metal (preferably copper), short the two conductors at the unterminated end of the stub. Slowly slide this metal toward the terminated end (Figure 1), keeping the metal in contact and perpendicular to the two conductors, and note where the interference is minimum. (The two conductors can be held shorted with the fingers, but this might detune the trap, especially at high frequencies.) Solder the two conductors at the correct point. If no soldering iron is available, twist the two conductors into a knot at the correct point (although this does not provide the best RF short).
- 6) If attenuation is so great that the selected weaker signal is attenuated too much, a low watt carbon resistor may be used in place of the short. Increasing the ohmic value of this resistor reduces attenuation and also the Q of the trap. A 18 or 22 ohm resistor should reduce attenuation to about 6:1; a 39 ohm resistor should reduce attenuation to about 3:1.
- 7) When the stub has been made, clip off excess conductors beyond the short (or resistor) and insulate conductors between the short and the insulated portion (if needed) to prevent accidental shorting.

The tuned stub is completed. For convenience, attach antenna clip to the terminated end for easy removal. If the shorted stub is satisfactory, but long length makes its use inconvenient---especially at frequencies below 100 MHz---carefully cut stub in half to form a  $\frac{1}{4}$  wavelength stub with the same effect.

Don't expect to eliminate very strong adjacent channel interference. Even with my "Trap Ease," which attenuates some signals by over 40 dB (100 times) I cannot eliminate adjacent channel interference from Milwaukee transmitters (eight miles away) when aiming the antenna in that direction.

Stubs for narrow bandwidth channels will attenuate the desired channel somewhat. For example, if a strong 99.5 MHz signal is trapped, adjacent 99.3 and 99.7 will also be attenuated. If 99.3 must be received, for example, shift the trap frequency above 99.5 until that frequency is still attenuated and 99.3 is not affected. Obviously, the 10:1 attenuation factor cannot be realized in such a case.

Any  $\frac{1}{2}$  wavelength tuned stub will also attenuate odd multiples ( $3/2$ ,  $5/2$ ,  $7/2$ ) of the interfering frequency. Since all high band stations are third harmonics of low band TV stations, check effect at the higher channels. For example, a stub cut for the center frequency of channel 3 (63 MHz) will also attenuate the third harmonic (189 MHz), which is channel 9.

NOTE: For the electronically-minded DXer, stub tuning is much easier with a grid dip meter (GDM) since the velocity factor and resonant frequency can be determined easily. Also, a wide range of adjustable capacitors can be added to each stub to tune it as required.

Slide metal short to point of minimum interference.

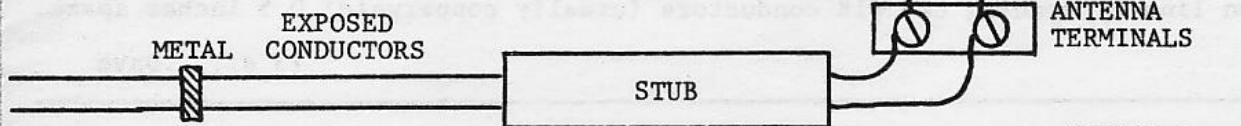


FIGURE 1

### Adjustable Traps

Enough insulation can be stripped from a single length of transmission line to permit adjustment from channels 2 to 13 as needed. This can be tricky, however, since the hanging conductors could accidentally short and retune the stub to a shorter length.

Accidental shorting can be prevented by mounting the conductor portion on a board (a yardstick is ideal) and keeping the conductors spread with staples or thumbtacks. Channels 2 through 6 (and, of course, 7 through 83) can then be trapped by moving a shorting device (wire with alligator clips at each end) between the exposed conductors on the yardstick. However, the conductor portion now has a velocity factor of almost 1.0 (free space); therefore, overall electrical length of the stub must be increased. Since the conductor portion between channels 2 and 6 is about 30 inches, the electrical length of this portion must be increased to  $1/0.85 \times 30$  or about 33.5 inches. Therefore, at ch. 2, add about four inches, for an actual stub length of  $86'' + 4'' = 90''$ .

Graduations on the yardstick can be used as convenient reference points. For example, 0 inches could equate channel 2, 5.5 inches might equal channel 7, etc. A chart can be set up to equal all channels to an equivalent length of the yardstick. If interference from 6 meters (50 to 54 MHz) is noted, make the stub longer by about 9.6 inches.

### Traps for UHF

Traps work equally well at UHF. From the chart, however, it is apparent that lengths are short. In fact, a  $1/8$  inch movement will shift the trap by one channel (6 MHz). It may be better to tune a  $3/2$  wavelength stub. Or, build the adjustable trap for channels 2-6; traps for all of the UHF channels will fall in this range.

### A Stub That Amplifies?

The stub, as explained earlier, works by reducing the signal on a given frequency. But stub builders--especially those who build the adjustable type--

may find to their delight that the signal of a given channel increases when a stub is shorted at a given point! This is not a function of the  $\frac{1}{2}$  wavelength stub, but rather a phenomenon caused by tuning out the reactance of the antenna to reduce standing waves and allow more signal to be delivered to the set. Do not expect this to happen on all channels or even a single channel. This topic will be described in detail in a later construction project and will, I am sure, open the door to more identification of more stations, especially those received via tropo.

#### Traps Using Other Types of Transmission Line

Traps may be built from any type of transmission line. In fact, other types (only flat 300 ohm has been considered so far) have distinct advantages; but use whatever is available.

The insulation of tubular line can be easily removed by slicing a small section at the side with a small knife and peeling back the insulation to reveal the conductor. This type is quite stiff and may be difficult to mount on a board. Velocity factor should be close to that of flat line.

Coax can be used, but its velocity factor is about 0.66. Adjust stub length per the formula given in Table 1. Actually, coax is easier to "short"; just stick a pin or nail through the outer conductor so that it makes contact with the inner conductor. Repeat at various lengths to determine correct point(s).

Open wire is, obviously, easy to "short." Its velocity factor is about 0.95 to 0.99 (not quite 1.0 due to the spacers). In fact, DXers can make 300 ohm open line by spacing two #18 conductors (usually copperweld) 0.5 inches apart.

73's.....Dave

## FM CCI UNIDENTIFIED FM-DX

Rod O'Connor  
P.O. Box 72  
Southwest Harbor,  
Maine 04679

Greetings. No reports have been received since summer, although I was very happy to receive the following IDs from Mike Dorner of Metairie, LA.

R. J. Steinberger

28 Jun 76 Mon 2300 95.3 Es -- "Almost definitely KFRA-Franklin LA; it operated until end of summer on 95.3, which was reallocated to Bayou Vista, 15 mi. E of there. CP not yet on air. KFRA-FM now 105.5, mono, rock till 10 PM, live ancr. Hotel commercial fits campaign heard on LA/MS stations."


Pete Sawatzky

13 Nov 76 Thu 97.7 MS -- "WFGM 97.7 is probably WFGM 97.9 Fairmont WV, with rock, new on air in 11/75."

22 Oct 75 Wed 93.3 MS -- "Was WQUE New Orleans--phone number checks out for Computer Date of New Orleans."

That wraps up this month's column. I should also note that this will be my last column, and that both TV CCI and FM CCI are to be consolidated into one column starting with the January '77 VUD. Frank Aden will be the editor of "CCI," while I hope to write occasional articles for the VUD as well as keeping active in DXing (or as active as possible around these parts). Conditions here in Maine this fall have been nonexistent. To all of you who have sent in contributions, I give you my sincere thanks, and wish all the best of DX and a fine holiday season.

Cheers,



Rod O'Connor

UNIDENTIFIED TV  
DX

# TV CCI

Frank Aden, Jr.  
1535 NW Ithaca  
Bend OR 97701  
503-389-5488  
Deadline: 10th

December 1976

Starting Next Month all FM & TV unIDs should be sent to this column, to be CCI in January

John Combs 816 W. Harvard Orlando FL 32804 (1976 unIDs)

Wed Aug 11 ES ch 5 1856 CST--"Heckle & Jeckle", no audio. PTA: Mexico, but lack recent Tele-Guias. The title in Spanish would be "Dos (or Los) Pajaros Locos". Lack up-to-date TGs here also, anyone who can get copies of TG plus write (FEA).

Sun Aug 22 ES ch 5 1856 EDT--"Let's Make a Deal". PTA: NE & N. Central USA. This would be ABC, WCVB checks, WEWS is negative (FEA).

**NEWS CENTER 5**

ch 6 1902 EDT--Through WDBO local-name Bill Travers keyed on screen. PTA: Same as above. There is a British actor by that name who starred in "Born Free" (FEA). This is probably the movie "Ring of Bright Water" ran by ABC on this date (FEA). I would suspect WTEV (FEA).



Fri Sep 3 ES ch 3 1850 EDT--"Gomer Pyle". PTA: NE USA, WTAR & WWAY in at this time. All TV GUIDES for this region are negative as most stations are running news at this time, could possibly be a Sept. time change in which no schedules are available (FEA).

Wed Sep 29 ES ch 2 1730 CDT--Delayed PBS "Sesame Street", 2 hours later than net feed. either a CDT PBS station or a commercial station in an area with no PBS stations. Possibly KMID, PTA: Central USA. KMID listed in June with net news at this time (FEA).

ch 2 1802 CDT--"Scene 2" News. PTA: Same as above with KMID suspect. KMID does list local news at this time but no info on name of news show (FEA).

ch 2 1931 EDT--"To Tell the Truth". PTA: NE & Central USA. No TV GUIDES available for Sept. (FEA).

ch 3 1933 EDT--"Hollywood Squares". PTA: Same as above.

ch 4 1934 EDT--"Wild Kingdom". PTA: Same as above.

ch 2 1943 EDT--Keyed in upper right of screen was "Bill Curtis" and "Focus". Other writing underneath but not readable. PTA: Same as above.

Bill Johnson Clarendon Hills IL 60514 (1976 unID)

Wed Jun 16 ES ch 4 1728 CDT--All French station, Band-Aid commercial, station ID with calls in upper left. Sounded like serving New Brunswick and Nova Scotia but no French ch. 4 in that area. CHFD, CBOT, CKRN are negative. Kojak slide was seen and CBC French does not run Kojak. CFCM? TVA stations CFIM, CHLT and CFVO list "Kojak" at 2100 but CFCM (also TVA member) has not schedules available and might not run // with the other members (FEA).

### More Regional Networks

Manitoba TV

CKY ch. 7 Winnipeg  
CKYB ch. 4 Brandon  
CKYD ch. 12 Dauphin  
CKYP ch. 12 The Pas  
CKYF ch. 13 Flin Flon  
CKYT ch. Thompson  
also ch. 11 Snow Lake,  
ch. 8 Fisher Branch

**CKY-TV**

MTV LIMITED, POLO PARK,  
WINNIPEG, MANITOBA R3G 0L7

KELOLAND

KELO ch. 11 Sioux Falls  
KDLO ch. 3 Garden City  
KPLO ch. 6 Reliance

**kelo-land tv**

KELO-11 KPLO-6 KDLO-3  
KY NETWORK NBC  
6th & Dakota  
Sioux Falls SD 57102

KSFY ch. 13 Sioux Falls  
KPRY ch. 4 Pierre  
KABY ch. 9 Aberdeen

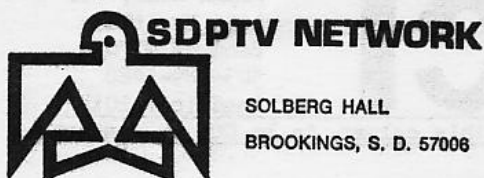
### new hampshire network

Box Z Durham, N.H. 03824  
Telephone 603/862-2093

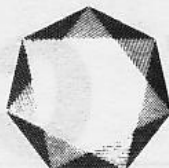
WENH ch. 11  
Durham  
WHED ch. 15  
Hanover  
WEDB ch. 40  
Berlin  
WLED ch. 49  
Littleton  
WEKW ch. 52  
Keene  
also ch. 59  
N. Woodstock,  
ch. 70 Conway



Regional Networks Continued.



**SDPTV NETWORK**  
SOLBERG HALL  
BROOKINGS, S. D. 57008



**MARYLAND CENTER  
FOR  
PUBLIC BROADCASTING**  
OWINGS MILLS, MD. 21117



KUSD ch. 2 Vermillion  
KESD ch. 8 Brookings  
KBHE ch. 9 Rapid City  
KTSD ch. 10 Pierre  
KPSD ch. 13 Faith-Eagle Butte  
KDSB ch. 16 Aberdeen  
KQSD ch. 11 Lowry  
KZSD ch. 8 Martin

WAPB ch. 22 Annapolis  
WCPB ch. 28 Salisbury  
WFPB ch. 31 Hagerstown  
WMPB ch. 67 Owings Mills

KETA ch. 13 Oklahoma City  
KOED ch. 11 Tulsa  
Oklahoma Educational TV Auth.  
PO BOX 14190, Oklahoma City OK  
73114.



Alabama ETV Commission  
2101 Magnolia Ave.  
Birmingham AL 35205



Ohio Educational TV Network Commission  
2470 North Star Rd. Columbus OH 43221

WDIQ ch. 2 Dozier  
WCIQ ch. 7 Cheaha Park  
WBIQ ch. 10 Birmingham  
WHIQ ch. 25 Huntsville  
WAIQ ch. 26 Montgomery  
WFIQ ch. 36 Florence  
WETQ ch. 42 Mobile  
WGIQ ch. 43 Louisville  
WIIQ ch. 41 Demopolis  
W7OAN ch. 70 Hamilton  
W72AN ch. 72 Winfield  
W74A ch. 74 Guin

WOUB ch. 20 Athens, WOUC ch. 44 Cambridge  
WGSF ch. 31 Newark, WBGU ch. 57 Bowling  
Green, WVIZ ch. 25 Cleveland, WNEO ch. 45  
Alliance, WEAO ch. 49 Akron, WCET ch. 48  
Cincinnati, WOSU ch. 34 Columbus, WPBO  
ch. 42 Portsmouth, WOET ch. 16 Dayton,  
WMUB ch. 14 Oxford, WGTE ch. 30 Toledo.



WEST VIRGINIA EDUCATIONAL  
BROADCASTING AUTHORITY  
Suite B 424 State Bldg. Six  
Charleston, WV 25305

WQEX ch. 16 Pittsburgh, WCBS ch. 2 New York,  
WOR ch. 9 New York are now in the Pittsburgh  
Metro Edition of TV GUIDE (PGH).

WMUL ch. 33 Huntington, WSWP ch. 9  
Grandview.

Remember starting next month TV-CGI and  
FM-CGI will be merged into CGI. All FM  
unIDs should be sent to my Bend address.  
More Educational TV Network information  
will be presented in January. If you  
have any information on state or regional  
education or commercial TV networks please  
write. I would like to thank Doug Everitt  
for the information on OETA.

Identifications  
Oct. TV-CGI, Bill Thompson, ch. 2  
June 28, 2000 EDT. Schedules for KTCA  
in October are negative (still maybe  
a program change, FEA). Schedules sent  
in by John Ebeling.

Happy New Year and Happy Holidays,  
SEE YOU IN 77!

*Frank*

# SPECIAL OFFER for WTFDAers...

The WORLD RADIO TV HANDBOOK has traditionally sold at a retail price of \$10.95, and has not been available through DX clubs for several years. Now, through the generosity of Perry Ferrell and Gilfer Associates, we are able to offer the WRTVH at a discount to WTFDAers for the first time! Members interested in purchasing a copy of the 1977 WRTVH should send a check payable to WTFDA in the amount of \$8.45 to club headquarters as soon as possible. Individual copies of the WRTVH will be mailed by Gilfer Associates as soon as these arrive from Europe, which should be during the month of February, 1977. To insure that your order can be fulfilled, it is necessary that it arrive at club HQ prior to January 7, 1977. WTFDA cannot guarantee the fulfillment of orders arriving after the date above. Here's your chance to obtain a useful reference book listing radio and TV stations world-wide at a price far below the retail cost. Place your order today!



# PHOTO-NEWS

Jim Alexander  
4 Brook Court  
Parsippany, NJ 07054

December, 1976

Feature: KOA- 4, KOA- 4

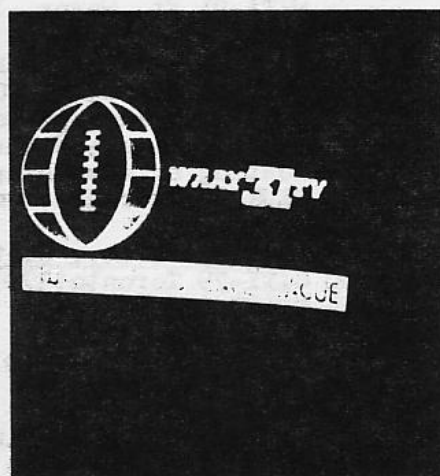
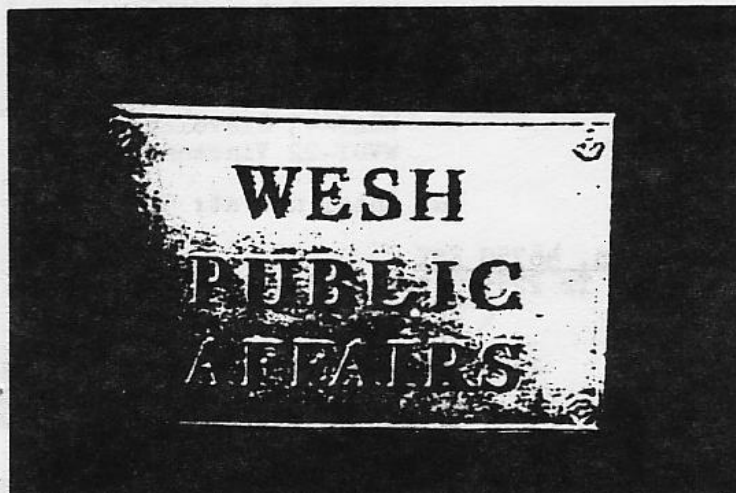
This month, PHOTO-NEWS features reception of the same DX station by different modes of signal propagation by the same DXer during the same month. Got that? Paul Gaines has sent photos of KOA- 4 reception by E-skip and by meteor scatter, and they are this month's feature. If the high signal quality and contrast of the E-skip photo seem impressive, consider this: when that photo was taken, Paul's antenna was stuck, pointed Southwest due to a dead rotor motor! As for the meteor scatter photo... it is only the third photo of DX by that mode which has been sent to your editor:



E-skip

KOA- 4 Denver, Colorado  
1,125 miles  
June, 1976

meteor scatter



WESH- 2 Daytona Beach, FL  
550 mile tropo (RL)

WAAY-31 Huntsville, AL  
410 mile tropo  
6/29/74, 0830 CDT (JG)

Many thanks to Paul Gaines for sending the feature photos, and to all our contributors this month:

Wishing a joyous holiday season to all...

RL = Ron LeBlanc, Marrero, LA

JG = Jim Gould, Kokomo, IN

*Jim*

# CENTRAL TV-DX

William J. Draeb  
Ellis St. R.R.#2  
Kewaunee, Wi.  
54216

Deadline: 10th

Needless to say, the past month has been disasterous for tropo dx. Premature Winter weather put an abrupt end to dx activities. I can't remember a more crummy month for tropo.

## N O T I C E

Beginning with the Jan. '77 VUD(next month)there will be some changes in this column. Dxers in Iowa, Illinois, Indiana, Michigan, Ohio, Wisconsin and Minnesota report to the Central Tv-Dx column. Dxers East of Ohio and North of the Mason-Dixon Line send your reports to The Eastern Tv-Dx editor and those of you East of the Mississippi and South of the Mason-Dixon Line send your reports to the new SouthernTv-Dx column run by John Combs; 816 W.Harvard, Orlando, Fl. 32804. The new deadline will be the 10th of each month and anything received after that will have to wait till the following month. There will also be other changes as you will see when you get your Jan. '77 VUD.--wd

Dean R. Markoshan; 10636 Avenue "B", Chicago, Il. 60617 CDT

"As a relatively new member to WTFDA(3-76), let me introduce myself and equipment to you in my first report. I had been dxing on a relaxed schedule for several years without ever knowing of WTFDA until I read an article in a local newspaper about Peter Oprisko of Whiting, Indiana. He was instrumental in getting me to join the club. Since then, I have been seriously involved in television dxing and have logged many new stations with a different antenna combination.

My equipment is as follows: 23" Zenith color tv, RCA 4B69 U-V antenna at 35', Winegard U-995 antenna, Blonder Tongue Able U-2 amplifier at 40', and CDE AR-40 rotator."

9-28 Tr 0630 WTOL-11 Toledo, Oh.	9-28 Tr 0900 KRIN-32 Waterloo, Ia.
0730 WGTE-30 " "	10-3 Tr 0330 WKYZ-7 Detroit, Mi.
WKAR-23 E.Lansing, Mi.	0400 CICO-32 Windsor, Ont.
WLKY-32 Louisville, Ky.	CKCO-42 Kitchener, Ont.
0800 Indianapolis U's	10-12 Tr 0730 WLIO-35 Lima, Oh.
WUCM-19 Bay City, Mi.	0800 WVIZ-25 Cleveland, Oh.
WCMU-14 Mt. Pleasant, Mi.	WTIU-30 Bloomington, In.
WPTA-21 Ft. Wayne, In.	WTVS-56 Detroit, Mi.
WKJG-33 " "	KINL-30 St. Louis, Mo.
WUHQ-41 Battle Creek, Mi.	W39AA Ft. Wayne(WBGU)
WKBF-61 Cleveland, Oh.	0900 CKGN-29 Oil Springs
(they are suppose to be off	WUAB-43 Cleveland, Oh.
the air; unless they were	WVUT-22 Vincennes, In.
testing or something--wd)	
0900 CKGN-22 Uxbridge, Ont.	Log total now at: 96

Robert Zent; 1835 Fruit St., Huntington, In. 46750 EST

10-2 Tr 0640 CITY-79 Toronto(370)	10-2 Tr 2255 Ontario U's--18, 22(Cottam)
CBLFT-25 " "	28, 29, 32, 40, 42, 48, 59,
CICA-19 " "	78.
CBLFT-40 London(260)	2305 WNEO-45 Alliance(225)
Kitchener U's(300)	WEAO-49 Akron, Oh.(200)
Chatham U's(200)	WPGH-53 Pittsburgh(290)
Windsor U's + CKCO-42	2325 WJET & WSEE Erie, Pa.(300)
0700 CICO-18 London(260)	2330 WUTV-29 Buffalo, N.Y.(375)
CKGN-29 Oil Springs	10-3 Tr 0030 CBLFT-76 Kitchener, On.(300)
0830 CFPL-10 London(260)	10-4 Tr 0625 Ont. U's-18,29,32,40,42,48,
0930 Peoria & Springfield U's	59,78.
0940 W71AE La Salle(195) T	10-14 Ms 0550 WBRZ-2 Baton Rouge, La.(800)
	10-20 Es 1900 CBHT-3 Halifax, N.S.(1200)
	CKCW-2 Moncton, N.B.(1090)
	(According to the June '76
	vud this is the only ATV
	station on ch.2)
	1910 Unid-6; ATV(CJCH-6-6 or
	CJCB-1-6)
	1925 Unid-2; French

"Surprising off season E-skip the evening of the 20th produced another logging. MUF apparently reached ch.6 momentarily as I saw same record commercial on both 2 and 6 ATV. Total log is now at 264."



Paul Gaines; 15920 Puritan St., Detroit, Mi. 48227 EDT-EST

10-13 Tr 0857 WMBD-31 Il. 1532(345) 0924 WICD-15 Il. 1522(305) Tr 10-13  
 0900 W46AB N.Y. 1022(180) 0933 WRAU-19 Il. 1032(345)  
 0920 WAND-17 Il. 1222(340) 1001 WICS-20 Il. 1533(375)

Also, WCBS-2 seen via Ms every day from 10-9 thru 10-30 and 11-1 thru 11-8.  
 11-6 Tr 0520 WSAZ-3 W.Va. 1022(280).

William J. Draeb; Ellis St. R.R.#2, Kewaunee, Wi. 54216 CDT-CST

10-27 Tr 2117 WKYT-27 Lexington(473) 10-29 Tr 2052 WKYT-27 Lexington(473)  
 WLKY-32 Louisville(437) 11-5 Tr 1943 KINL-30 St. Louis(432)  
 WDRB-41 " " WOSU-34 Columbus(395)  
 10-29 Tr 2006 Cleveland area U's(355) 1950 WMUL-33 Huntington(498)  
 WOSU-34 Columbus(395) 2000 WGTQ-8 Detour, Mi.(205)  
 2008 WKEN-27 Youngstown(420) (zero offset)(seen daily)  
 11-9 Tr 0749 KINL-30 St. Louis(432)  
 Log total now at: 661

Randall B. Clark; Rt.5 Dutch Rd., Parkersburg, W.Va. EDT-EST

10-10 Tr 0200 WKYZ-7 Detroit 3424 10-23 WKAS-25@2150 Ashland, Ky. 4324  
 10-12 Tr 0855 Most semi-locals in W31-- Newark, Oh.(ex-WGSF) also  
 such as WLEX, WKPI, noted.  
 WWVU, WVIZ, WKAS, 10-29 Tr 2230 WJET cci with WWVU-24  
 WMUL, WOSU, WYTV, 10-30 Tr 1045 WKPI " " WKEF-22  
 WOET. Most KET stations in.

10-13 Es 2225 KMID or KPRC-2  
 10-20 Es 1825-1905 CKCW-2



1100 WCWN-54 Covington, Ky.  
 Also seen was W56AM Bullitt, Ky.  
 and other xtrs from Ky. on chs.  
 46 & 48; calls & locations unknown.

Jim Gould; R.R.#3, Kokomo, In. 46901 EST (317)-452-9585

10-13 Tr 0625 KMTC-27 Mo. 3534(445) 10-13 Tr 0710 KOLR-10 Mo. thru WTHI  
 0626 KBMA-41 " under WUHQ 10-28 Tr 2150 WWVU-24 W.Va. 2522

Paul E. Petosky; Box 537, Munising, Mi. 49862 EDT

10-2 Tr 2000 WPNE-38 Wi. (145) 10-2 Tr 2330 WZZM-13 Mi. (240)  
 CBLAT-4-11 Ont.(160) WWTW-9 " (160)  
 WSNS-44 Il. (315) 10-3 Tr 0030 WISN-12 Wi. (235)  
 2300 WMVS-10 Wi. (235) 0155 WISC-3 " (274)  
 2330 WJRT-12 Mi. (270) 0200 WBBM-2 Il. (315)

Paul mentions that he is no longer associated with FM radio in the U.P. In-  
 stead he is sales manager for a U.P. newspaper--wd  
 The following article was passed on to me by Paul Petosky--wd.

**TORNADO WARNING SYSTEM**

The following article, first appearing in The Pipeline and later reproduced  
 in Mid America Boating contains what could be an extremely important piece of  
 information:

Did you know that your TV set is a built-in tornado detection device? Let  
 your TV set warm up. Tune in to Channel 13 and darken the screen to nearly  
 black by using brightness control.

Then switch to channel 2, leaving the volume turned down unless there is a  
 broadcaster on that channel. The "tornado detector" is now ready for operation.  
 As a storm approaches, lightning will produce a white band of varying width  
 across the screen(color sets will produce a colored band.)

A tornado within 15 to 20 miles will produce a totally white screen, and it  
 will remain white. If this occurs turn off the TV, take a battery operated  
 radio, and go to a place of shelter at once.

The "why" behind this system? Every Tv has channel 2 set at 55 megacycles.  
 Lightning and tornadoes generate a signal near this frequency which overrides  
 the brightness control. Channel 13 is at the "high" end of the frequency band  
 and is not affected. This is why the darkness must be adjusted on that channel.

# WESTERN TV-DX

Doug Everitt  
1708 W Maine  
Enid OK 73701

Deadline: 5th

December 1976

Pat Dyer still seeing Es thru November 1st; will it never end? Many readers are probably wishing they lived in San Antonio... For details, see the chart towards the end of the column. Now, on to the reports...

Richard Noel Allen, Billings OK 74630 (CST) (08-22 August)

Receiver: Sony KV1212 color. N new T tentative

Antennas: 11-element VHF log & 44-element UHF log.

<u>08</u> Es 1231-1328 XEW 2 DF	<u>09</u> tr 0511-0516 KOLN 10 NE
1238 XHTV 4 DF <u>T</u> +ofst	0512-0517 KETV 7 NE
1302-1328 XEZ 3 QRO	0537 KDOG 26 TX
1303-1325 XHD 4 TAM <u>N</u> ∅ofst	<u>10</u> tr 0448-0500 KFVS 12 MO
1349-1400 KYW 3 PA <u>T</u>	0448-0500 KPIR 11 MO
1349-1500 WSYR 3 NY <u>T</u> BB	0448-0500 WHBQ 13 TN <u>N</u>
1410-1543 WBEN 4 NY	0502-0515 KLTV 7 TX
1427-1430 WPSX 3 PA	0502-0516 reception of DFW
1457-1539 CKVR 3 ON	and Topeka area stations.
1501-1512 CBLT 5 ON	0513-0515 KYTV 3 MO
1503-1538 WJBK 2 MI	<u>11</u> tr 0450-0554 reception of DFW,
1512-1514 WGR 2 NY	KC, Topeka, Joplin areas.
1523-1539 WKZO 3 MI <u>T</u>	<u>12</u> MS 0448 WCBD 2 SC 30 sec.
1559 CKCO 2 ON	Es 1956-2114 UnID 2 PBS station
1600-1618 WJBK 2 MI	<u>14</u> Es 1457-1508 XEZ 3 QRO
tr 1630-1700 KYTV 3 MO	<u>17</u> tr 0445-0515 reception of DFW
2118-2128 KXTX 39 TX	area stations.
2118-2130 KTVT 11 TX	<u>19</u> tr 0540-0545 KHNE 29 NE
2118 WFAA 8 TX	0542-0545 KMEG 14 IA
2121-2123 KTSB 27 KS	Es 1658 KGFE 2 ND
2123 KCPT 19 MO	1658-1702 CKOS 3 SK
2123-2124 KCBJ 17 MO	1700-1702 CBWFT 3 MB
2124 KTVJ 16 MO	1830-1832 KUTV 2 UT
2124-2146 KOZK 21 MO	1832-1836 XHBC 3 BCN
2124 KMTC 27 MO	1834-1836 KTVK 3 AZ
2124-2125 KBMA 41 MO	<u>22</u> Es 1756-1800 WCBD 2 SC
2125-2126 K34AA KS	1828-1833 WWAY 3 NC
2128 KIDZ 24 TX	
<u>09</u> tr 0445-0600 reception of DFW,	August was a slow
KC, Topeka, Joplin areas.	DX month. Totals:
0509 K7ØEK KS	303 stations.

Pat Dyer, 5315 Silvertip Drive, San Antonio TX 78228 (CST)

Equipment: 1976 model solid-state 9" b&w Penncrest with an Archer V-100 TV-FM and 8-bay bow-tie UHF array at 20 feet with rotor.

-N new -t tentative -M by new mode -C first by new call

August

<u>07</u> Es 1015-30 UnID 2 north	<u>08</u> Es 1159 KEYT 3 CA 1270
1835 UnID 2 west, brief	1202 KNBC-t 4 CA 1190
2005 UnID 2 north, brief	1337 XHTV-t 4 DF 690
2105 UnID 2 north, CBS	1337 XHGC-t 5 DF 690
MS? 2113 WTWO 2 IN 935	1400 WDTN 2 OH 1075 BB
<u>08</u> MS 0401 WLWT 5 OH 1035 90s.	1415 WAVE 3 KY 945
Es 0810 WCBD-t 2 SC 1120	1450 WCMH-C 4 OH 1135 //2
0810 WCIV-t 4 SC 1120	1532 WTWO 2 IN 935
0813 WSJK-t 2 TN 1010	1559 WBBM 2 IL 1045
0859 WEDU 3 FL 985	1639 WBAY 2 WI 1190
0929 WFMY 2 NC 1175	<u>09</u> Es 0810 UnID 2
0935 WUNC-t 4 NC 1210	1005 UnIDs 2,3
1012 WRAL-t 5 NC 1230	1010 WCCO-t 4 MN 1110
1029 WSAV 3 GA 1050	1016 KTCA 2 MN 1110
1029 WCBD 2 SC 1120	1115 KCKT 2 KS 615
1135 WSB 2 GA 880	1129 KNOP 2 NE 815
1135 WAGA-t 5 GA 880	1144 KDUH-t 4 NE 940
1157 KNXT 2 CA 1190	1145 KOTA 3 SD 1040

Pat Dyer continued...

09 Es 1204 KTWO 2 WY 1015  
 1226 KUTV 2 UT 1080  
 2105 UnID 2 brief  
 MS 2358:55 WESH 2 FL 1055  
 10 Es 0925 UnID 2 SS south  
 0929 WSAV 3 GA 1050  
 0945 UnIDs 2-6  
 1007 KNBC-t 4 CA 1190  
 1025 KTLA-t 5 CA 1190  
 1113 KWGN 2 CO 810  
 1129 WCBF 2 SC 1120  
 1155 WCIV-t 4 SC 1120  
 1203 KTWO 2 WY 1015  
 1229 KOTA 3 SD 1040  
 1259 KDIX 2 ND 1225  
 1327 KOAI 2 AZ 855  
 1327 KORK 3 NV 1050  
 1329 KNXT 2 CA 1190  
 1615 WBAY 2 WI 1190  
 1636 WJBK 2 MI 1225  
 1653 WWJ-t 4 MI 1225  
 1659 WKYC 3 OH 1250  
 1715 UnID 2 SS south  
 1729 YSR 2 ElSdr 1200  
 1837-1900 UnIDs 2,4  
 1925-50 UnIDs 2  
 1929 KDIX 2 ND 1225  
 2100-15 UnIDs 2  
 -meteors confusing f/out  
 2300 UnID 2  
 -choppy, brief, not MS though  
 11 tr 0008 KWTW 9 OK 420  
 0010 KTXS 12 TX 230  
 MS 0359 WLWT 5 OH 1035  
 tr 0402 KDFW 4 TX 250  
 MS 0405 WTVR-t 6 VA 1325  
 -lots of tr messing up MS  
 0422 WAVE 3 KY 945  
 Es 0850 UnIDs 2,3  
 0859 WPBT 2 FL 1150  
 0859 WTVJ-t 4 FL 1150  
 0959 WEDU 3 FL 985  
 1000 WESH 2 FL 1055  
 1244 WDIQ 2 AL 730  
 1315 UnIDs 3  
 -lots of MS to confuse it  
 1330 UnIDs 3,4 sw  
 1459 WBAY 2 WI 1190  
 1529 WMT 2 IA 945  
 1930-2045 UnIDs 2-6  
 2016 WJBK 2 MI 1225  
 2016 WWJ-t 4 MI 1225  
 12 tr 0004 KOTV 6 OK 485  
 0028 WAFB 9 LA 450  
 -something one doesn't need when looking for meteors is a lot of tr to contend with (so look for tr--de)  
 MS 0358 WLAC 5 TN 820  
 tr 0420 KXAS 5 TX 240  
 -if stations were on standard time, the test-pattern period would better coincide with the diurnal peak of MS; as it is now, it apparently precedes it

12 MS 0445 WATE-t 6 TN 990  
 tr 0452 KPLC 7 LA 325  
 Es 0835 UnIDs 2,3  
 0915 KNBC-t 4 CA 1190  
 0915 KEYT 3 CA 1270  
 0959 KNXT 2 CA 1190  
 0959 KORK 3 NV 1050  
 1000 KTLA-t 5 CA 1190  
 1029 KOAI 2 AZ 855  
 1059 WSAZ 3 WV 1100  
 1128 WDTN 2 OH 1075  
 1128 WAVE 3 KY 945  
 1159 KTVI 2 MO 790  
 1359 KTCA 2 MN 1110  
 1359 WMT 2 IA 945  
 1500 WSAV 3 GA 1050  
 1503 WCBF 2 SC 1120  
 1610 WCIV-t 4 SC 1120  
 1623 WESH 2 FL 1055  
 1633 WUFT-t 5 FL 975  
 1659 KOAI 2 AZ 855  
 1708 WEDU 3 FL 985  
 1759 WPBT 2 FL 1150  
 1759 WTVJ-t 4 FL 1150  
 1759 WPTV-t 5 FL 1150  
 13 Es 0025 UnID 3 SS brief  
 MS 0446:50 WKRG 5 AL 630  
 -meteors vly low to what expected  
 tr 0457 KTAL 6 LA 350  
 0459 KTBS 3 LA 350  
 -more unwanted tropo  
 14 Es 1505-15 UnIDs 2-4  
 1515 KNBC-t 4 CA 1190  
 1520 KEYT 3 CA 1270  
 1529 KNXT 2 CA 1190  
 1629 WCBF 2 SC 1120  
 1650 WCIV-t 4 SC 1120  
 1725-50 KNXT 2 CA 1190  
 1750 XHBC-t 3 BCN1010  
 15 Es 0930 UnID 2 nw  
 0943 KWGN 2 CO 810  
 0959 UnID 3  
 0959 KTWO 2 WY 1015  
 16 MS 0352:20 WAGA 5 GA 880  
 0352:20 WSB 2 GA 880  
 17 Es 1020 WTHS 2 FL 1150  
 1045 UnIDs 2  
 1233 Cuba 2 brief  
 18 Es 1055 UnIDs 2,3 west  
 1540-50 UnID 2 nw  
 19 Es 0830-40 UnIDs 2,3  
 0850 WDTN 2 OH 1075  
 -soon after this point, I left town for the Central States VHF Society meeting in Houston August 19-22  
 22 Es 1950 UnIDs 2-4  
 1955 UnIDs 2-6  
 2108 WBBM 2 IL 1045  
 2110 WBTW 3 NC 1105  
 2115 WFMY 2 NC 1175  
 23 Es 0210-45 UnIDs 2,3 spotty  
 1005 UnID 2-MS confusing  
 1025 UnID 2  
 1445-1525 UnID 2  
 1555-58 UnID 2

Pat Dyer continued...

24 Es 0905-15 UnIDs 2,4  
 0912 WTVJ-t 4 FL 1150  
 0912 WESH-t 2 FL 1055  
 0915 WTHS 2 FL 1150  
 1010-20 UnIDs 2,3 south  
 1050-1130 Cuba 2  
 1145 YSR-t 2 ElSdr 1200  
 25 tr 0010 XHAB-t 7 TAM250  
 0010 XHFW-t 9 TAM505  
 0010 XET-t 6 NL 275  
 27 Es? 1110 UnID 2  
 tr 2335 KPLC-t 7 LA 325  
 31 Es 1800-25 Cuba 2

September

01 tr 0015 XHFW-t 9 TAM505  
 0015 XET-t 6 NL 275  
 0026 XHX-t 10 NL 275  
 06 MS 0028 KSBY-t 6 CA 1335  
 1532:40 KMTV-t 3 NE 830

-The Perseid shower was not as good as had been expected, with none of the many needed ch. 5s being caught. The Lewis Telethon provided a good opportunity for quick IDs with the superimposed town/phone #s, but the meteor levels just weren't there--and tropo conditions (inside the state) were up such that ch. 2-5 had fairly steady signals to fight over.

08 tr 0020 XHX-t 10 NL 275  
 0032 KFDM 6 TX 275  
 0032 KAUZ-t 6 TX 305  
 09 Es 1215 UnID 2 nw brief  
 2015-20 UnIDs 2  
 2035-50 UnIDs 2,3  
 10 Es 1945-50 UnID 2 CBS n  
 15 Es 1655-1730 UnIDs 2,4 SS  
 1735 YSR 2 ElSdr 1200  
 1855 TGV-t 3 Guat 1120  
 16 Es 1528-1715 UnIDs 2-6 SS  
 1719 YSR 2 ElSdr 1200  
 17 Es 1500-10 UnID 3 net 2 Mex  
 1645 UnIDs 2,3 ne  
 1659 WESH 2 FL 1055  
 1659 WEDU 3 FL 985  
 1858 UnIDs 2-4  
 1859 WNGE 2 TN 820  
 1859 WSAZ 3 WV 1100  
 1927 WAVE 3 KY 945  
 2035 WSB 2 GA 880  
 18 Es 1930 WESH-t 2 FL 1055  
 1935 WEAR-t 3 FL 685  
 1959 WPBT 2 FL 1150  
 20 Es 1850-1920 YSR 2 ElSdr 1200  
 -along with UnIDs 2  
 22 Es 1715-1900 YSR 2 ElSdr 1200  
 -along with UnIDs 2  
 23 tr 2115 KPLC 7 LA 325  
 24 tr 0959 KMID 2 TX 275  
 0959 KOSA 7 TX 280  
 25 Es 1840-55 and 1920:  
 XHBC-t 3 BCN 1015  
 26 tr 0110 KFDM 6 TX 275  
 Es 1005-1535 UnIDs 2-4 and  
 YSR 2 El Salvador 1200

29 Es 1655-1730 UnIDs 2,3,6 east  
 1820 WPBT-t 2 FL 1150  
 1820 WTVJ-t 4 FL 1150  
 1825 WCIX-t 6 FL 1150  
 1929 Cuba 2  
 2005 YSR 2 ElSdr 1200  
 30 tr 0959 KMID 2 TX 275  
 Es 1715-30 UnIDs 2 FL-t  
 1829 WPBT 2 FL 1150  
 1831 WSB 2 GA 880  
 1842 WESH 2 FL 1055  
 1844 WDBO 6 FL 1035

October

01 Es 1710 KNBC-t 4 CA 1190  
 1713 KEYT 3 CA 1270  
 1820 KNXT 2 CA 1190  
 1825 XHBC 3 BCN1015  
 1825 XHAQ-t 5 BCN1015  
 1840 XETV-t 6 BCN1100  
 1904 KOAI 2 AZ 855  
 1904 KORK 3 NV 1050  
 1908 KVVU-t 5 NV 1040

-I never expected this period of the year to contain so many Es reports. September looked like one of the best for that month since 1968 (even tho most of it was to Latin America). (It's been an odd year, Pat--de)

03 Es 1940-45 UnID 2 SS se  
 06 Es 1725-1925 UnIDs SS w & s  
 07 Es 1815-20 YSR-t 2 ElSdr 1200  
 10 Es 1435-50 UnID 2 SS sw  
 20 MS 0336:40 WSB 2 GA 880  
 0349:55 UnID 5 OH  
 0401:25 WKRG-t 5 AL 630  
 Es 1810 UnIDs 2,3  
 1828 KDIX 2 ND 1225  
 1837 KOTA-t 3 SD 1040  
 1858 UnIDs 4  
 1859 KTWO 2 WY 1015  
 1859 KWGN 2 CO 810  
 1859 KOA-t 4 CO 810  
 1910 UnID 5  
 26 Es 1945-50 KUTV 2 UT 1080  
 31 Es 1820 UnIDs 2 ne  
 -maybe Au effects mixed  
 1840-1910 UnIDs 2,3 west  
 1928 XHI 2 SON715  
 2355-0000 UnID 2 west

November

01 Es 1845 KTWO 2 WY 1015  
 1900-40 UnIDs 2,3 ne & w  
 1940 KTVK-t 3 AZ 835  
 1955 XHBC-t 3 BCN1010  
 2005 KNXT-t 2 CA 1190  
 2015 KCPX-t 4 UT 1080  
 2034 KUTV 2 UT 1080  
 2059 KTCA 2 MN 1110

-Still a good bit of Es popping up in October, even though a lot was down south again. Orionid shower not too much, as peak in a.m. well after most stations programming and off TPs, etc. With the time change, that should be better suited. (next page--de)

Pat Dyer's comments continued...

October 31 stuff from ne was faint and very choppy flutter, much like some stuff I saw on September 22, 1963 (the night of a great ne auroral display)-maybe Es link Au? (very interesting things seem to be happening down there, Pat. Maybe your extended Es season will continue and run into the mid-winter season. Who knows? Maybe we'll end up with year-round Es down there this time around...de) 73, WA5IYX

Frank Aden, Jr., 1535 NW Ithaca Avenue, Bend OR 97701 (PDT) (May 22-Aug 23)

Receivers: GE 18", Arvin 9", Panasonic 7", Sony 5".

Antennas: two ch. 2-13 stacked at 25' on rotor. Run into 20dB gain preamp, then into 6dB gain distribution amp. (Frank, I wish you'd give more details in your report--de) N new

May

22 Es 1900 KENW 3  
 2000 KMID 2 N  
 2005 KACE 3 N  
 2015 KARD 3  
 2020 KCKT 2  
23 Es 1440 XHBC 3  
 1445 KORK 3  
29 tr 1340 KTVB 7  
 Es 1800 CKOS 3  
 1815 KDAL 3  
 1830 CKSA 2  
 1830 CBXT 5  
 1930 CBWFT 3  
 2100 CBWT 6  
31 Es 1345 KCKT 2  
 1345 KARD 3  
 1400 KTVS 3  
 1500 KLNE 3  
 1600 KOA 4  
 1600 KWGN 2

June

04 Es 2000 XHBC 3  
09 Es 1530 KCKT 2  
 1530 KYCU 5 N  
 1535 KTVS 3  
 1545 KLNE 3  
 1600 KHAS 5  
 1600 KMTV 3  
 1605 KSNB 4  
 1620 KSTP 5  
 1625 KDAL 3  
 1630 KTCA 2  
 1630 WWT 6 N  
 1645 KDLO 3  
 1700 WCCO 4  
 1800 KDIX 2  
 1900 CBWFT 3  
 1900 KGFE 2  
 2030 KTWO 2  
 2030 CBWT 6  
 2030 CKYB 4  
 2045 KXJB 4  
 2045 CKCK 2  
 2045 CKX 5  
 2200 KYUS 3 N  
 2230 KEYT 3 N  
 -came out of nowhere at tail  
 end of opening  
10 Es 2330 CKSA 2  
 0800 KENW 3  
 0800 KCKT 2  
 0830 KTVS 3  
 0830 CKCK 2

11 Es 1800 KNOP 2  
 1800 KLNE 3  
 1830 KTWO 2  
 1830 KDUH 4  
12 Es 0830 KWGN 2  
 1930 CKOS 3  
 2030 CBWFT 3  
 2100 KTVK 3  
 -change in clouds  
13 Es 1100 KSNB 6  
 1100 KMTV 3  
 1200 KENW 3  
 1230 KCKT 2  
 1230 KARD 3  
 1300 KTIV 4  
 1300 KUSD 2  
 1300 KDLO 3  
 1330 KXON 5  
 1330 KPRY 4 N  
 1330 KOTA 3  
 1430 KGFE 2  
 1430 CBWFT 3  
 1900 KENW 3  
 2000 KAMR 4  
 2000 KFDX 3 N  
 2030 KMID 2  
 2300 KENW 3  
 -s/off, c/b run  
15 Es 1900 KOTA 3  
 1930 KOA 4  
 1930 KUSD 2  
 1945 KGFE 2  
 2000 KARD 3  
 2000 KCKT 2  
 2030 WMT 2  
 2100 KTCA 2  
 2300 KDLO 3  
16 Es 1800 KOTA 3  
 2300 KENW 3  
23 tr 2345 KTVB 7 vy strong  
 2345 KBCI 2  
24 Es 2000 KMID 2  
25 Es 2255 CBWFT 3  
27 Es 1330 KDIX 2  
 1330 WCCO 4  
 1345 KPLO 6  
 1400 KSTP 5  
 1400 KGFE 2  
 1530 CKYB 4  
 1530 CKCK 2  
 1530 CBWT 6  
 1530 CBWFT 3  
 1600 CKOS 3

Frank Aden, Jr. continued...

<u>27</u> Es 2000	KMID	2	<u>17</u> Es 1550	KGFE	2
<u>28</u> Es 1930	CKCK	2	2200	KWGN	2
<u>29</u> Es 1830	CKSA	2	<u>18</u> Es 1340	KNXT	2
<u>July</u>			1350	KNBC	4
<u>02</u> Es 2000	KDLO	3	1350	KTIA	5
2100	KMTV	3	<u>19</u> Es 1330	KUSD	2
<u>03</u> Es 1330	KTVK	3	<u>20</u> Es 1730	KMID	2
1700	KTWO	2	1900	KXON	5
1700	KLNE	3	1900	KUSD	2
1730	KENW	3	1945	KDIX	2
2200	KMID	2	2000	KDAL	3
<u>05</u> tr 0900	KTVB	7	2300	KARD	3
0900	KIVI	6	2300	KCKT	2
Es 1400	KGFE	2	2300	WDAF	4 N
1630	KCKT	2	2300	KCMO	5 N
1630	KARD	3	-1st into KC MO from Bend		
1700	CKSA	2	2359	KTWO	2
<u>07</u> Es 1830	KFDX	3	<u>21</u> Es 0900	KOCO	5 N
2230	CKBQ	2	0930	KTVY	4 N
2230	CBWFT	3	-1st into OKc from Bend		
<u>08</u> Es 0800	KENW	3	1030	KARD	3
0800	KNMN	5	1230	KTVC	6
0830	KAVE	6 N	1230	KLNE	3
1800	KTEW	2	1400	KHAS	5
1820	KOTV	6 N	1400	KNOP	2
<u>09</u> Es 1830	KOTA	3	1430	KDIX	2
1830	KENW	3	1435	KDUH	4
2230	KPHO	5	1435	KOTA	3
2230	KVOA	4	1500	KTIV	4
2230	KNXT	2	1700	KCKT	2
2300	KNBC	4 N	1700	KARD	3
2300	KTIA	5 N	<u>25</u> Es 1700	KMPV	3
-1st good S. CA from Bend			<u>26</u> Es 1830	CKCK	2
2300	XHBC	3	1900	CKBQ	2
<u>11</u> Es 1900	KDIX	2	<u>29</u> Es 1900	CILT	4 T
2000	KTEW	2	-c/b, tone, believed to be new ch.4 in Lloyd-minster AT testing		
2030	KCKT	2	1930	CBWFT-1	6 N
2030	KARD	3	-new CBC in The Pas MB		
<u>13</u> Es 2045	KNOP	2	2030	CFRN	3
2100	KWGN	2	2030	CFAC	2 N
<u>14</u> Es 1730	KTVU	2 N	2100	CKCK	2
-1st Bay Area from Bend			<u>August</u>		
ch.4 dead most of time			<u>17</u> Es 2100	KLNE	3
1730	XHBC	3	2105	KOAA	5
1730	XHAQ	5 N	-back from WTFDA and IRCA		
-S. CA dominated above 2			conv.; gone 31 Jul-16 Aug		
1930	KTVK	3	<u>23</u> Es 1530	CKCK	2
<u>17</u> Es 1330	KLNE	3			
-maybe Au in at times					
1400	KNOP	2			
1530	KDIX	2			

Not much seen since the 23rd. I had openings almost every day from May 31st to June 29th. Many were 15 minutes or less so had no idea where they were from. I never did log KFYZ-5 this season, which is unusual, as I saw just about every skip station this summer that I'd received in Bend since moving here in 1973. KCKT and KARD as usual ran many "KSN" IDs, then going into a show. I rarely saw them run a legal ID. Wonder how the FCC feels about them. (so do I. Their legal idents are indeed far apart--de) Many unusual openings were seen more often this year than before. 73, Frank

\*\*\*\*station news: Call for new Arkansas ETV in Fayetteville is KAFT-13. KWTV-9 OKc runs late-nite movies entitled "Milkman's Matinee." Enid OK CATV system reportedly working on plans to carry LA CA independent by microwave.....

Doug Everitt, 1708 W Maine, Enid OK 73701 (CDT thru 30 Oct, then CST)

- 11 Oct - 0705 t/in: KMEG-14, KVFD-21, KHIN-36 (IA), K18AA, K34AA, K7ØEK (KS), KXNE-19 (NE), KCPT-19, KBMA-41 (MO); KTSB-27 snowfree; at 0800: tentative WHA-21 (WI) causing Ø CCI on KVFD, which was still on 21. I had to leave right after 0800, so I don't know how things might have turned out here. A local ham, W5UOT, reports working into several distant 2m repeaters, though. 2012 t/in: UnID 2 NBC by Es, brief.
- 13 Oct - 2015 t/in: CKGN2-2 (ON) Es, with Global promos and ad for Mary Hartman. 2035 f/out.
- 22 Oct - 2005 t/in: KTVK-3, KOAI-2 (tentative-both AZ). At 2059: UnID 3 Spanish. Es f/out shortly after 2100. 2330 t/in: KETA s/off, leaving new KAFT-13 (AR) at 5555. North TX Vs and Us in nicely.
- 24 Oct - 0209 t/in on CATV: KOTV s/off, leaving an old war movie at 3555. On for 15 seconds before blanking. Back on my antennas: at 1439, strong Ø CCI on KOLR-10 to ene. Only zero offset I have listed in that direction is WTHI in Terre Haute, but no other significant VHF or UHF activity, so this remains a mystery. 2234 t/in: KYTV-3 (MO) in nicely.
- 25 Oct - 1822 t/in: Ø CCI very evident on KTEN to ese, WKNO-10 (TN) is suspected. Ø CCI also on KTUL, suspect KAIT-8 (AR). 1852: Ø CCI on KETA thru KAFT, suspect WHBQ-13. No other significant activity, however, other than above-average signals from stations within 250 miles.
- 26 Oct - 1040 t/in: KHTV-39, KDOG-26 (TX), WRBT-33 (LA).
- 31 Oct - Went on excursion to hill-top north of Enid with a hi-band yagi. VHF's out to 200 miles were snowfree on hi-band, and the MO Us were in fairly well on a bowtie. One of these days, I'm going up there with a dish!
- 02 Nov - 0833 t/in: KMBC-9, KCBJ-17, KBMA-41 (MO); KTSB-27 snowfree.
- 06 Nov - 0900 t/in: K7ØEK, KTSB-27 (KS), KBMA-41, KCPT-19 (MO). At 1245: Wichita/Hutchinson stations, usually in at around 3445, noted at 5555. Stayed that way for rest of day. About once a month that single 100-mile path becomes very strong, but nothing else is affected. Nothing on UHF except the ever-present MO Us and KTSB-27.
- 08 Nov - 0013 t/in: very strong Ø CCI on KTEW, apparently unmodulated. No fade, so apparently Es. Suddenly gone at 0015--southeast.

As mentioned in 'station news', Enid's CATV company is apparently making plans to bring in one of the Los Angeles CA independents. We're already served by KTVT-11 and KXTX-39, the DFW independents. I also have been told that they are laying two-way trunks now, so who knows what lies ahead?

The new KAFT-13 in Fayetteville throws pretty strong CCI on local KETA with the latter nulled to the ese. For 220 miles, they have a very sturdy signal into Enid.

Mid-winter Es should be rolling around about the time you read this. I hope everybody had a nice Thanksgiving and hope you'll all have a good holiday season this year. Merry Christmas, Happy Hanukkah, or whatever!



By the way, if you have some logos laying around, send them in with your report!

It really would be something if Pat's summer and winter seasons did merge...

Date	September	20	22	25	26	29	30
# reporters		1	1	2	1	1	1
MUF at least		2	2	3	2	2	2

October	01	03	06	07	10	13	20	21	22	26	31	November	01	08
	1	1	2	1	1	1	1	1	1	1	1		1	1
	6	2	3	2	2	2	4	5	3	2	3		4	2

Again, enjoy your holidays.

73 & the Best of DX!

Doug

# 4 4 1 1 1 5 5 5 7 1 1 Bob's Tek-Notes

by Robert B. Cooper, Jr.

## LET'S TALK dB

You can't smell it, feel it or taste it. Yet the decibel (usually abbreviated dB) is just about the most important tool of the TV reception trade.

Few understand it completely. And since, without a mathematical background it seems illogical in practice, most of us assume (in error) that to understand the dB we'd have to go back to school for refresher courses in math, physics and electronics.

The term dB is tossed about glibly, and by many who don't understand its true usefulness. The newcomer to TV and FM DXing soon figures out for himself that dB's are good when they mean antenna "gain," pre-amp "gain," and total system "gain"; but not so good when they mean the loss in a transmission line.

We want lots of dB's in our antenna, a usable amount in a mast-mounted or set-mounted (pre)amplifier and a whole bunch of negative dB's in a single channel trap designed to "knock out" an unwanted local channel. But we don't want any in our transmission line!

So how can something so good also be so bad, in the same "system"?

The confusion lies in the mathematical background of the dB. Properly expressed, the dB is a unit of measurement. But it is not an exact term of measurement in the sense that the foot or pound are, or the 38-24-36 measurements of our favorite gal are.

The dB measurement scale was originally popularized, I believe, by Bell Labs as a convenient method of measuring the difference between two levels of sound. Let's explain how it was first put to work at Bell, as this may assist us in understanding how we use it today in TV.

Bell engineers place you in an acoustically perfect room at Bell Labs. When the door closes, there is complete silence. I mean complete silence. It is so quiet that you think you will go stark raving mad if you have to stay there for any length of time.

In another room an engineer turns a knob, and in your test chamber you hear a sound; an audio tone or note. The tone breaks the silence, and you are glad for its company. Now the engineer increases the volume of the tone, by turning up (very slowly) an audio gain control knob. As he slowly advances the knob, you suddenly realize that the loudness of the tone has increased; it is now louder than it was when first turned on.

And that is what a dB is!

How's that again? The difference in loudness that you first recognized was a one dB increase in volume. The non-technical explanation of the dB is that it is "the smallest increase, or decrease, in volume, that the human ear can detect..." (as change). Now your ears are not identical to mine (lucky for you!). No two sets of ears are exactly alike. What I may detect as an increase in volume, you may not. And a third party may insist that the volume increased (in our Bell Labs test) before I said it did.

So how can the dB be an exact thing if it affects three different people in three different ways?

Well, Bell figured this one out too. They sampled the hearing of several million people. And the average of all these tests became their tool for the dB format. It is surprising how closely you and I and everyone else hears, when our individual hearing traits are averaged in with about a million or two others!



Now while you and I and millions more were obliging Bell by listening for a change in volume (or sound intensity)---this all took place in the 1930's---the Bell engineering types were measuring the electrical power output of their test sound system with the usual array of electrical and electronic test equipment. While they measured and kept track of voltage and current and watts, we measured change in volume (both up and down).

When the testing was completed, Bell had an exact set of figures which they could then duplicate forever. An increase in power output from a generator (such as an audio tone generator, a power generator, or a radio frequency transmitter-generator) could be measured in the conventional electrical/electronic ways, and these changes in power directly translated into the handy working tool---the decibel or dB. A certain increase at the "generator" would always bring a known increase in volume, to the average listener-user.

So the decibel was born. The unit of change.

The mathematicians then went to work and found that the dB was a logarithmic function. That is, not linear. If you are not a math buff, you probably think this is a good point to give up and go check channel 2. Don't stop now; I'll explain.

Let's install a sound system. Our electronic measurement equipment tells us the system is delivering two watts of audio power to the speakers. We sit back, noting how loud the sound "sounds" to us. Then the sound output of the sound system is increased from two watts to four watts. Twice as much as before.

If our ears are properly tuned (i.e. we have an average set of ears), how much louder would you say the four watts will sound than the 2 watts sounded?

Twice as loud? (After all, it is twice the power.)

Bad guess. The sound would now be 50% louder. Not 100%.

And that is logarithmic function. Our ear's response and that of our entire hearing system, is logarithmic. In log type measurement situations, it is necessary for the power source to be multiplied by four to reach a point where our ear says---now it is twice as loud.

What is a linear increase, then? One where you double the power of something, it becomes twice as powerful as before. A 100% increase in results with a 100% increase in starting power. A one for one relationship.

What in the world does any of this have to do with TV reception?

Just this---once Bell people had developed the dB as such a handy measurement device for sound, other facets of the electronic industry climbed aboard the bandwagon.

The TV world soon discovered that as the human ear perceives changes in loudness, so too apparently does the human eye to increases of intensity (on lighted scenes) to what we see. A 100-watt floodlight in a studio, on a performer in front of a TV camera produces a scene of such and such brilliance. To double the effective brilliance of the scene---we need a 400-watt floodlight. Those logarithms again!

Which is perfectly logical if you look at it this way. The little electrons that run around making up the TV picture we see on our home TV screen are just like the little electrons running around in our audio (sound) system. The electron is not partial to whether it helps make up a picture, or part of a sound.

Remember now that the dB is a logarithm (method of expressing changes in number relationships, in math) type of measurement. Math is mostly figures and figures are numbers. And the smallest school child learns to subtract and add numbers.

Given a set of numbers from 1 to 1000, we place them along an arc line drawn across the meter face on an electrical meter. We do this in a linear fashion---so that the distance on the meter face between 1 and 2 is exactly the same physical distance as the space between 888 and 889, or 965 and 966. Now we connect our meter and its faceplate to a TV field strength indicating device---which is nothing more than some type of electronic circuit designed to make electrons flow in the direction we want them to go.

As the electrons from the TV signal flow through the meter circuit, their flow is reflected (or shown) on our faceplate. The more electrons moving through the circuit, or the faster the electrons go, or the stronger the flow of electrons, the further up from zero (toward the top scale of 1000) the meter-pointer reads. Let's say that when we first connect our antenna to this field strength meter, the meter faceplate scale reads 200. Now as we rotate the antenna, and the antenna picks up more of the TV signal electrons, we see the meter scale pointer climb from 200 to 400, on our scale of zero to 1000. Now we have twice as much signal (electron flow is doubled) as before.

But---just as with our experiment at Bell with sound measurement, the TV signal electrons are not twice as strong (on the TV screen). At least not as far as our eyes are concerned. Certainly the electron flow doubled in power, but our logarithmic eyes saw only a 50% increase in picture clarity, and our logarithmic ears heard only a 50% increase in TV sound volume.

So it is established that you can build a meter---a field strength meter---which will give us a linear reading of electron flow---on a linear meter-face scale.

However, since the human eye and ear do not react in a linear fashion---for they are truly log devices--wouldn't it be more convenient to simply calibrate the faceplate in dB's? If we do this, and we have a meter pointer that rests, at no electron flow, against the left-hand edge of the meter faceplate, we will have the early dB numbers (1,2,3,4, etc.) fairly well spread apart on the left-hand side of the scale, but moving closer and closer together (i.e. not evenly spread apart as in our linear 0 to 1000 scale) as the dB numbers increase toward the right-hand side of the scale. This gives us a meter faceplate that reads directly in dB's, which is similar to the way the standard broadcast band dial divisions are presented on most inexpensive AM radios. The 500, 600, 700, etc. numbers have lots of tuning room on the dial, but as you get closer to 1200, 1300, 1400, etc. the dial space is pinched closer and closer together. If you can picture this type of radio dial, you can picture in your mind a dB scale faceplate.

Keep in mind through all of this that when the math boys at Bell got their hands on the hearing test results, they converted the results into a set of numbers. Log (decibel) charts, as it were.

Numbers can be added, and subtracted. And herein, finally, lies the truth behind this tale---how the dB numbers affect your TV-DXing equipment.

#### ANTENNAS

The usual practice in antennas is to rate an antenna as having "X dB gain". Let's imagine an antenna here that has 10 dB gain; 10 being X. Now since we know the dB is a relative thing--i.e. it means in the case of an antenna that our 10 dB antenna has 10 dB more gain than something else that we are comparing it to--we need to know what the standard of comparison is.

Most reputable antenna manufacturers adopted the practice, by joint agreement in the 1950's, of rating their antennas against a reference dipole. The dipole is a simple one-half wave antenna, which you can fashion yourself out of a piece of standard 300-ohm twinlead.

In antenna measurement talk, the dipole has 0 dB gain. It is the starting point, and we refer the gain of every other type of antenna to the "gain" of a dipole. If our test antenna has 10 dB gain, and the dipole has 0 dB gain, it follows that a "wet piece of string" of random length would probably have negative gain; or minus dB gain. This is one of the nice things about dB's; you can subtract them, go negative, because 0 is always a reference point. All you have to know, really, is what the '0' reference point is!

The pre-amplifier or booster is another type of animal. In antennas, we start out at 0 dB reference point by using a dipole antenna as our starting spot. We do this in antenna work because it is easy to duplicate, accurately, the dipole in Idaho, Hawaii, or South Carolina. And if everyone starts out using the dipole as the standard "zero" reference point, then a man building a 10 dB antenna in Idaho should end up with an antenna that works just like a 10 dB antenna built in South Carolina or Hawaii.

With the pre-amplifier, booster or amplifier, our starting point is always the input signal level to the unit. A 20 dB booster is simply a booster which will give an output signal 20 dB stronger than the original input signal. It matters not one bit what the input happens to be---since the output will always be 20 dB stronger, whether the booster is built in Idaho or Hawaii.

### TRANSMISSION LINES

These are almost the reverse of pre-amplifiers, in dB talk. In the pre-amplifier, we compared the output signal level to the input signal level and measured the difference in plus dB's.

In a transmission line, we measure the amount of signal that goes into the line (such as at the antenna), and then measure the amount of signal that is coming out of the line at the other end (such as at the TV set). The amount of signal at the output end of the line will always be less than what went into the line, so we say that the line attenuates (subtracts from) the original input signal.

This is because, in a transmission line of any type, the wire itself is not a perfect conductor of the electron flow. As the electrons travel from the start (input) of the line to the end (output) of the line, some of the electron flow energy is lost in the process. The minute flow of electrons over the outer surface of the wire conductor(s) has friction loss from the wire surface itself.

Since the electron energy stays on the surface of the metal conductor as it travels through the wire, it is the surface friction that counts. Silver is the best known conductor of electrons (i.e. it offers the lowest friction), and copper is a reasonably close second. Silver is expensive, copper not quite so dear. So copper surfaced (or clad) wire is the most common transmission line. Silver would be better, but still far from perfect.

So in a transmission line, we measure the subtraction (or loss) of electrons, from the start of the electron flow where the energy enters the T-line at the antenna, to the end of their flow through the T-line, at the receiver. This loss in electrons, during the flow, is called attenuation. And attenuation in T-lines is measured (or expressed) in dB's (so you expected pounds?).

It is one of the peculiarities of electronic electron flow (in contrast to electric electron flow) that the higher the frequency of the electrons (which is the same thing in TV as saying the higher the TV channel number), the more friction loss there is between the wire surface and the electron flow. As a result of this, the attenuation (or dB loss of the cable) goes up as the TV channel number goes up. To express this another way, if we start out at the antenna (going into the T-line) with the same amount of electron flow energy at channels 2,6,7,13,14 and 83, we will, at the bottom or receiver end of the T-line, have the highest signal on channel 2, next highest on channel 6, then channels 7,13,14 and 83, in that order. Just remember--the higher the channel number, the greater the friction between the electron flow energy and the surface of the wire.

Since we are talking about dB...and we are going to use the decibel to measure how much loss there is in a given T-line, we have to decide on a starting or reference point again. We could say that there is so much dB loss per foot, per inch or per any other unit of physical distance. But the loss is relatively small, even at channel 83, when you try to measure it for each foot of T-line involved. So the people who turn out T-lines adopted as their standard "so much loss---attenuation---per 100 feet."

This is useful information when we are comparing T-lines in a catalog, but it doesn't mean too much in our particular installation. At least not all by itself. Our own ultimate reference is the input signal to our T-line run, at the antenna, for our installation. If we have a T-line with 3 dB loss at channel 13, we then know that at the bottom of our T-line run, at the receiver, the channel 13 signal will be 3 dB weaker (minus 3 dB) than it was at the antenna.

### Receiver/Pre-Amplifier Noise Figures

We noted in our discussion of antennas and the dB that the reference dipole is 0 dB, as a convenient starting point. In antennas, and pre-amps, we wanted lots of dB's. In transmission line ratings, we want as few dB's of loss (minus dB's) as possible.

What about receivers? In TV receiver specs, we never see a set of figures that tells us how many dB gain the receiver itself has, although such figures would be very useful to DXers. It is possible, if you go through and add up the cumulative gain of a receiver from the original receiver stage-by-stage design data, to establish these figures. The stage-by-stage process is standard practice for the original design engineers on any receiver project---and their files would show this data.

It is possible, usually, if you dig deeply enough, to find something known as "noise figure"...and it will be expressed in dB's.

Without stretching this article out to over 100 pages, suffice it to say that receiver and pre-amplifier noise figures are a little bit akin to T-line losses. The higher the noise figure (abbreviated Nf) in dB, the more of the original input signal (from the T-line) is lost in the process of making a picture and sound from that electron flow. Noise figure ratings, when you can find them in the spec sheets, are usually in three sets; one for low band (2-6), one for high band (7-13), and one for UHF (14-83). Like transmission line losses, the Nf dB figure goes up as the channel number increases. For comparison purposes only, 4 dB is typical for low band, 5.6-6 dB is typical for high band and 9 dB is above average for UHF. "Typical" UHF Nf's are hard to come by anyplace, since when compared to VHF Nf's, they are so bad (due mostly to the lack of a good low noise--low Nf--RF stage in the UHF tuner) that manufacturers shy away from even posting the numbers.

### 0 dB In TV Work

Thanks mainly to the influence of CATV, where absolute levels of signals are very important, there has been an adoption of something called the 0 dB reference point for TV work. You will run into this most frequently whenever leafing through CATV or MATV literature.

In this realm, 0 dB is 1000 microvolts. Ooops...slipped in a new term, didn't I?

Remember our linear scale for the TV field strength meter faceplate? The one with the 0-1000 scale, in which the scale divisions were equal, from 0 to 1000?

One of the easiest ways to calibrate a TV field strength meter (which CATV types abbreviate FSM) is in microvolts; or, millionths of a volt. All early FCC TV data was done in microvolts, and today's FCC standard Grade "A" and "B" service contour areas are still measured in microvolts. So the early FSM's were calibrated in microvolts, and some of today's units are calibrated in both microvolts and dB's.

Unlike the dB, the microvolt is an absolute value. 1/1,000,000th of one volt. And unlike dB's, when you have a 200 microvolt signal, and increase the signal to 400 microvolts on the meter scale (double the microvolt signal level indicated), you now occupy twice as much meter scale space on the faceplate.

The average TV receiver will lock into sync (i.e. hold horizontal and vertical hold) with about 20 microvolts input. On low-band (2-6) TV signals, the snow disappears from the screen---on the average set---at about 250 microvolts signal input. On high-band, it may disappear as low as 150 microvolts input, while at UHF it is not typically snowfree until we reach 250 microvolts again.

So on any band, 1000 microvolts (0 dB in TV trade) is a pretty healthy signal--well above the snow level, and adequate for good color reproduction on most color receivers.

It is at 1000 microvolts that the CATV-MATV industry has established their 0 dB reference point. In this field, a signal that reads 100 microvolts input is minus 20 dB, while a signal 10,000 microvolts strong is plus 20 dB. If the two relationships don't make any sense to you, remember that dB's are a log scale type of thing, and not linear.

Too Many dB's

Let's close this treatment of the decibel by throwing in one more bit of essential information.

Any device that has electronic amplification circuits has an upper limit as to how many dB's of signal it can put out (at the output) before the device no longer functions properly.

This maximum output point is called the overload or saturation point of the device (usually an amplifier or pre-amplifier). Devices having such problems include the TV set too--witness the case of adjacent (strong) channel slop over onto an un-used channel locally.

Most reputable manufacturers rate their pre-amps and amplifiers at "so many dB output before overload."

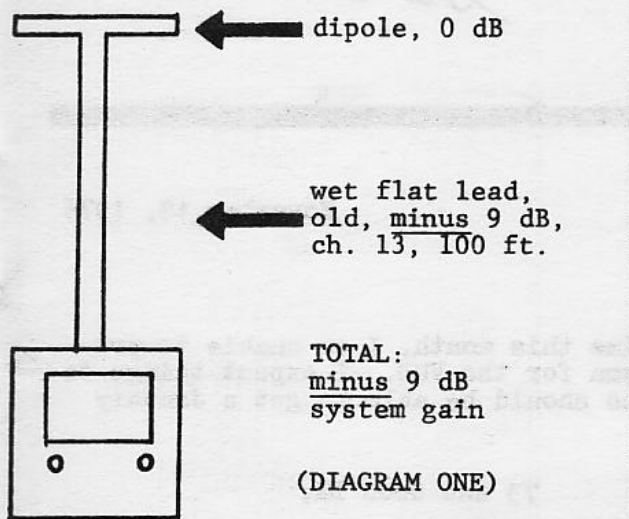
What is their reference point? The same 0 dB that CATV-MATV people use; 1000 microvolts.

An amplifier that is rated for plus 40 dB output (which is the same as 100 thousand microvolts if you care) will handle the specified number of channels, each at plus 40 dB, at the output. Some units are rated at "5 channels, plus 40 dB," others at "12 channels, plus 40 dB."

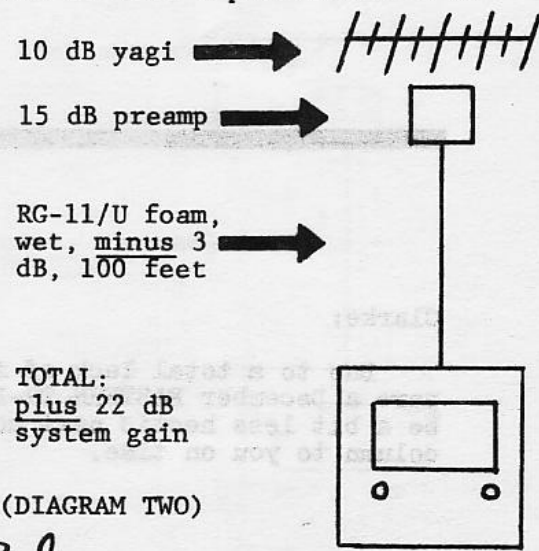
Now the amplifier itself may have 20 dB gain, and have a maximum output rating of 40 dB. What does this mean? Simply that if you run the unit with gain wide open (full up), you can run a signal into the unit at up to plus 20 dB, which when added to the 20 dB of gain in the unit itself will give you the rated 40 dB output (20 dB plus 20 dB, or 40 dB).

See the point? You add the input signal (referenced to 0 dB) to the gain of the unit, to establish the output signal level...and it is all done in dB's.

Let's close this thesis with two examples, as shown below. Diagram 1 has our dipole antenna, high attenuation flat lead T-line, and other undesirable features. The signal input, in dB, to the TV receiver is shown. Diagram 2 is the same installation, ala a good DX set-up, and is also expressed in dB's.



(DIAGRAM ONE)



(DIAGRAM TWO)

# TV CCI AIDS

Steve West  
432 Kenmore Road  
Havertown, Pa. 19083

December 1976

Deadline; 10th

## CBET-TV 9 Windsor, Ontario (CBC)

Sign on: 0830 Mon-Fri 0900 Sun  
0930 Saturdays

Sign off: 0230 all week

Misc: Sometimes carries CTV  
programming.

News: At 1800 Saturdays,  
1930 Weekdays

Test Pattern: Colour Bar with  
a dot matrix numeral readout  
clock.

## CFPL-TV 10 London, Ontario

Sign on: 0800 Sun-Friday  
0830 Saturdays

Sign off: From 0045 to 0230

Test Pattern: 3/4 Colour Bar

News: News at Noon 1230 Mon-Fri  
FYI at 1800 Monday thru Sat.

Movies: Afternoon Movie at 1245  
Monday thru Friday, Night Movie  
at 2345 Fridays and Saturdays

## TV Ontario CH. 18 19 24 28 32 59 (TVO)

Sign on: 0800 Weekdays  
0830 Weekends

Sign off: 0130 Weekdays  
0000 Weekends

Programing: Educational  
Test Pattern: Colour Bar

## CKVR & CKVR 1,2 & 3 on Channels 3, 5, 8 & 12

Sign on: 0800 Weekdays 0830 on  
Saturday and 0730 Sundays

Sign off: 0230 everynight

## CHCH-TV 11 Hamilton, Ontario (Independent)

Sign on: 0630 Weekdays  
0600 Weekends

Sign off: 0200 Weekdays  
0100 Sundays, 0330 Saturday

Many thanks to David Leibold for this months information. Also thanks to Frank Aden for a list of news names that will appear in an upcoming VUD. As always, send any information on your local stations.

*Steve*

November 18, 1976

Clarke:

Due to a total lack of free time this month, I am unable to prepare a December EASTERN TV-DX column for the VUD. I expect things to be a bit less hectic next month, so should be able to get a January column to you on time.

73 and Good DX,

*Bill*

# MEMORABILIA

December 1976

Robert J. Williams  
251 6th Avenue East  
Twin Falls, Idaho 83301  
Phone: (208) 733-3621  
Deadline: 15th of month

## "20 YEARS AGO IN TV-DX" (Source: December 1956 bulletin of the AIPA)

F<sub>2</sub> skip was the big news during the 1956-58 period in TV-DXing as the sunspot count approached its peak. Some specifics:

- Dec. 2, 1956: Bob Cooper (then in Fresno, CA) reports F<sub>2</sub> reaching not only into the 6-meter amateur band, but to U.S. TV channel 2! On the morning of the 2nd, he logged WTWO Terre Haute IN, WGBH Boston MA, and WCBS New York NY, as well as two unidentified Canadians!
- Gordon Simkin of Havre de Grace MD, known as an "International TV-DX Specialist", hears and gets the BBC (England) with his home-brew 40-60 mc tunable converter. He also reports audio from France, tentative Germany or Hungary, as well as several unIDs, including some Portuguese. Ken Stoll, of Buffalo NY, also reports BBC audio.
- The Kansas State Highway Patrol complains of interference on their 45-mc rigs from the BBC!

The month of November also brought some off-season E-skip openings. A Louisiana DXer reports construction under way on TV in Panama: Channels 2 and 4 in Panama City, and Channels 6 and 12 in Colon. Also, an unknown DXer from Kewaunee WI named Billy Draeb ("Billy"?) sends in his first report!

The above report "20 YEARS AGO IN TV-DX" was sent in by John Combs of Orlando FL. Many thanks, John. Let's have more of those goodies from bygone days. Ah, memories.....beautiful memories.....

73s and happy reminiscin',

*Bob*

## NEW DX REPORTING AREAS

### TV-DX

EASTERN TV-DX: covers states east of Ohio and north of the Mason-Dixon line.

CENTRAL TV-DX: covers Iowa, Illinois, Indiana, Wisconsin, Ohio, Michigan and Minnesota.

SOUTHERN TV-DX: covers states east of the Mississippi River and south of the Mason-Dixon line.

WESTERN TV-DX: covers all states west of the Mississippi River but excludes those through which the river passes (such as LA, MO, etc)

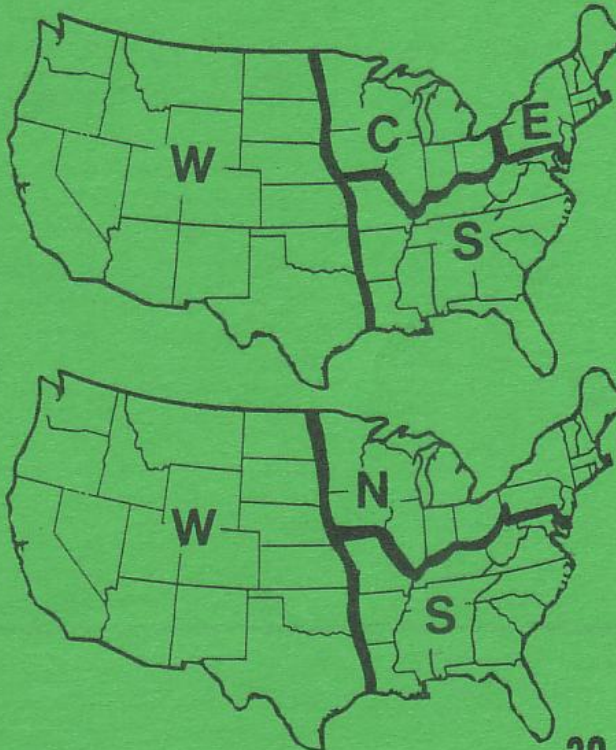
### FM-DX

NORTHERN FM-DX: covers states north of the Mason-Dixon line and east of the Mississippi river.

SOUTHERN FM-DX: reporting area is identical to SOUTHERN TV-DX above.

WESTERN FM-DX: reporting area is identical to WESTERN TV-DX above.

Maps to right illustrate the new areas, effective as of 1-1-77.





Post Office Box 202 - Whiting, Indiana 46394

# WORLDWIDE TV-FM DX ASSOCIATION

**TOUGH  
TO BEAT!**

**Established 1967**

SERVING THE  
VHF-UHF DX  
ENTHUSIAST



DUES: USA and Canada, \$11 (via first class); overseas, \$18 (via air mail).

The VHF-UHF DIGEST is the official publication of the Worldwide TV-FM DX Association. WTFDA is a non-profit organization and a member club in the Association of North American Radio Clubs (ANARC).

Persons contributing their efforts for the Worldwide TV-FM DX Association do so without any monetary compensation. Dues and all other revenue cover printing, postage, and other expenses.

The WTFDA is governed by a five-man board of directors, now composed of Morrie Goldman, Mike Hogan, Clarke Ingram, Pete Oprisko, and John Zondlo. ANARC representatives are Morrie Goldman, Clarke Ingram, and Pete Oprisko.

EDITOR-IN-CHIEF.....Clarke Ingram	COMPTROLLER.....Gary Olson
PUBLISHER.....Pete Oprisko	BOOKKEEPER.....Bruce Elving
CIRCULATION.....John Zondlo	PROCESSING.....Dave Janowiak
DISTRIBUTION.....Mike Hogan	LITERATURE.....Morrie Goldman

## S U P P L I E S and D X L I T E R A T U R E WTFDA member rates only.

- REPRINT SERVICE....Articles from May 1972 to the present are now available.  
A complete 1976 catalogue can be obtained from WTFDA HQ.
- VUD Back Issues....Available: Nov 1973 issue to the present. 50¢ each  
Sent by first class or special book rate.
- BEYOND SHORTWAVE....An introduction to TV, FM, and V-U radio DX written and edited by prominent DXers. \$1.00
- TV STATION GUIDE....An accurate listing of North and Central American TV stations, featuring maps for each channel pinpointing their locations. \$3.00; nonmember price, \$5
- THE FM ATLAS AND STATION DIRECTORY (Newest Edition!)....An accurate and detailed FM listing with maps and many special articles, by Bruce F. Elving, VUD FCC-FM News column editor. \$3.50 via First Class Mail
- UHF TRANSLATOR DX GUIDE....A complete listing of US UHF translators; notes call, location, power, and primary. Also: a section on DXing The Translators. Sold Out (No Longer Available)
- Club Rubber Stamp...Official WTFDA emblem, as at top of this page, but 37 mm in diameter. Order from Weldon Patterson-Box 25-Adolph, MN 55701. \$3.50
- WTFDA Stationery....Features the official WTFDA emblem as at top of this page printed in blue on bond. 45 sheets \$1.00
- DX Log Sheets.....These sheets punched for a 3-ring binder help to keep DXers' running logs orderly. Pad of 100 \$2.50
- VUD Boxers.....Attractive cases designed to keep copies of the VHF-UHF DIGEST neat and organized. \$1.50 each
- Station QSL Report Forms.....For requesting QSLs (verifications) from TV and FM stations. Now offset printed! 45 sheets \$1.00
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