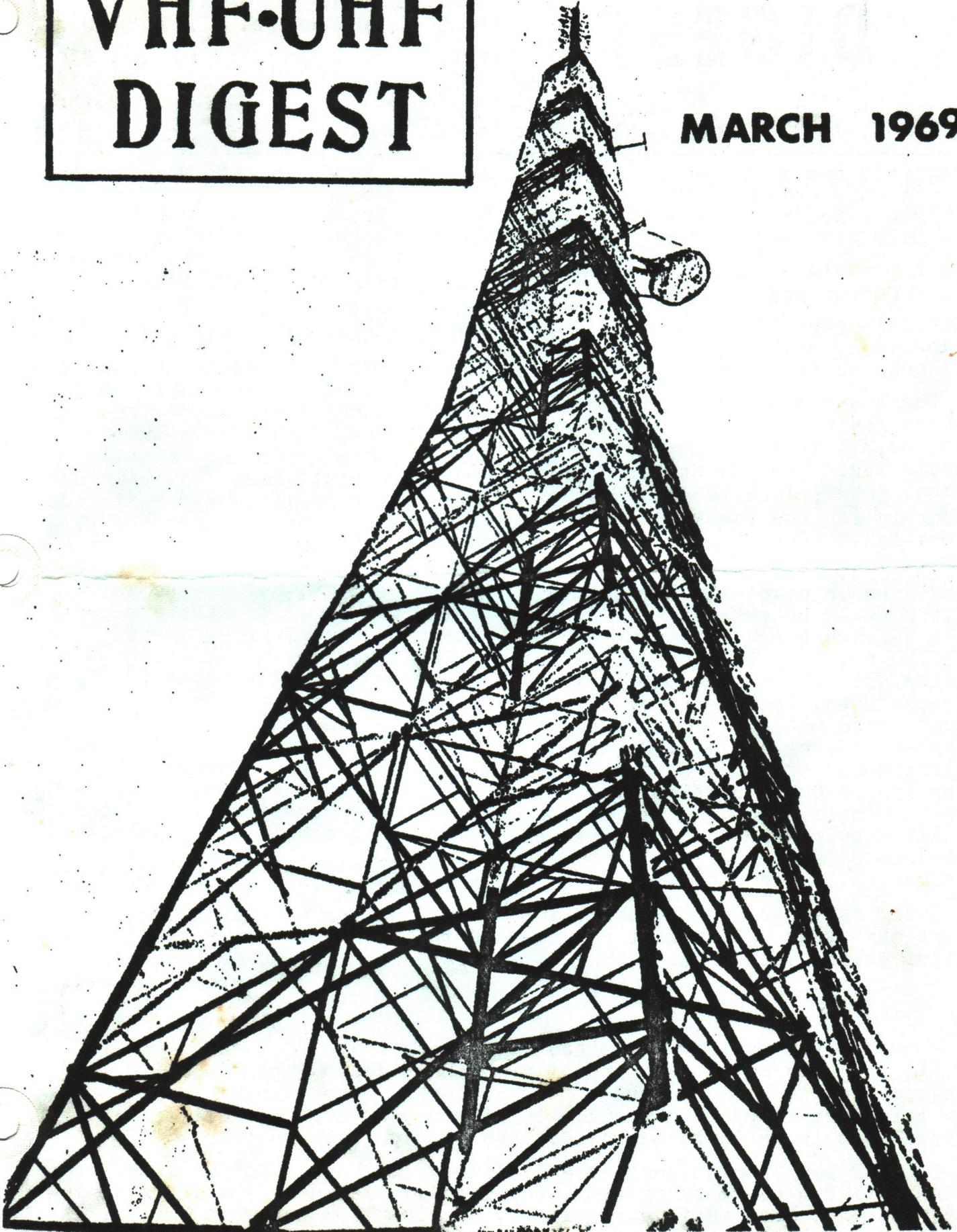


**VHF·UHF  
DIGEST**

**MARCH 1969**



# VHF-UHF DIGEST

MARCH, 1969

Vol. 2, Nr. 3

is the official monthly publication of the WORLDWIDE TV-FM DX ASSN., published at Milwaukee, Wisconsin about the first of each month. Address HQ correspondence and make checks payable to the club at Box 5001, Milwaukee, WI. 53204, USA.

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Foreign members: \$3.50/yr. (3rd cl.)

## Renewals due this month:

Raymond Bell      Bill Bens  
Paul Ciceri      Ken B. Cooper  
Mike Northam      Cliff Dykes

This month's cover was designed by John Hansen and Bill Heusmann.

Sunspot count for January was up:  
low 68      high 154      average 104.5  
(Thanks to Henry Gac of Detroit.)

There has been some discussion about having our own convention in Steger, Illinois on May 30th. Co-hosts would be Bill Heusmann and John Hansen; John is going to California for the Summer and won't be able to co-host after Memorial Day. Transportation would be provided from Chicago's loop. Accommodations would be available at the Chicago Heights Holiday Inn for \$11.50 single, \$15 double, or the Aztec Motel or other places in the Steger area, (at lower rates). Actual dates would be the weekend of May 30 to June 1, 1969. Meeting place would probably be the Holiday Inn in Chicago Heights, or a small Steger hall.

All inquiries should be directed to John Hansen, 3001 Sangamon St., Steger, Illinois 60475.

Every care has been taken to insure that your VUD arrives eventually. Third class takes a long time.

Some of you may have seen ads for a long range TV booklet which has been advertised recently. We have found the information to be very basic, and the seven pages not worth the price. You get much more for the money in our bulletin although we are specialists in the field so this is to be expected. Spend if you wish however.

The MUF has been up considerably lately, as Morrie Goldman received the BBC audio on February 25th, and I got it February 28th. Morrie indicated that from my tape recording, my reception was much better. I had BBC for 1:15 and ORTF for a minute or 2. This was my first BBC in 10 years and my first ORTF ever, so I was quite excited. 73, f.s.d.

## Renewals received lately:

Roger Winsor      Robert Cooper  
Wm J. Draeb      Dave Janowiak  
John Dyckman      Frank Wheeler  
Joseph Fela      Ken Chatterton  
Joe Gragg      Dave Pomeroy

## New members:

Jack Schmermund      Ralf Erler

Radio-TV Experimenter announced recently that the magazines name will be changed to Science and Electronics. They also requested that readers write in and tell what they would like to see in future issues. This is the best time to write in your requests for TV DX articles. The magazine's new listings of VHF stations is certainly welcome, and corrections to their TV station list are occasionally sent from HQ to help the accuracy of that listing. The Jones Log isn't published nearly often enough to keep us informed so RTVE is our best bet.

An editorial on mass circulation electronics publications is in the works, pointing out the favoritism of some magazines toward some clubs and against other clubs.

The TV station list is also in the works as is a new members list.

An addressing machine has been added this month to insure delivery. First class is recommended for speed however.

# FCC NEWS & DATA

GARY A. OLSON, APT. 107  
5901 W. BROWN DEER RD.  
BROWN DEER, WIS. 53223

## STATIONS OPERATING (AS OF FEBRUARY 13, 1969)

UHF ETV	98
UHF Com	172
VHF ETV	75
VHF Com	506

# TV

Total Authorized Stations On the Air 851

### New Stations Reported On Air:

WTOG (TV), ch. 44, Tampa, Fla., 741 kw., took air Jan. 27th  
WPGH-TV, ch. 53, Pittsburgh, Pa., 1825 kw., took air Feb. 1st  
WRDU-TV, ch. 28, Durham, N.C., took the air Feb. 6th  
\*WLIW-TV, ch. 21, Garden City, N.Y., took air Jan. 27th

### Stations Authorized to Start Operation:

KMST (TV) ch. 46, Monterrey, Calif., 443 kw.  
\*WKPI (TV) ch. 22, Pikeville, Ky., 468 kw.

### New Target Dates Reported:

\*WMPB (TV) ch. 67, Baltimore, Md., target late 1969

### Miscellaneous Changes Reported:

KULR-TV, ch. 8, Billings, Mont., became primary ABC affiliate  
January 1st -- station also will carry some NBC and CBS  
programs

## FCC COMPLETED ACTION

### New Grants:

Gainesville, Fla., (Minshall Productions) ch. 20, 137 kw.  
Williston, N.D., (Williston Enterprises) ch. 11, 130 kw.

### Call Letter Changes:

WRDU (TV) ch. 28, Durham, N.C., now WRDU-TV  
KFEQ-TV, ch. 2, St. Joseph, Mo., now KQTV (TV)

### New Call Letters Issued:

Savannah, Ga., ch. 22, (Lewis Broadcasting) WJCL (TV)  
Buffalo, N.Y., ch. 29, (Ultravision) WUTV (TV)  
Utica, N.Y., ch. 20, (Park Broadcasting) WUTR (TV)

### Miscellaneous Changes:

channel 2 will be assigned (instead of channel 9) to Flagstaff,  
Arizona  
channel 22 will be deleted from the table of assignments at  
Seaford, Del., and assigned to Annapolis, Md.

### Other Changes Allowed:

KUDO (TV) ch. 38, San Francisco, Calif., ERP to 895 kw.- ant.1310'  
WBRZ (TV) ch. 2, Baton Rouge, La., ERP to 100 kw.  
KOOA (TV) ch. 5, Pueblo, Colo., granted waiver of rules to  
permit identification as Pueblo-Colorado Springs

## ACTION APPLIED FOR OR REQUESTED:

### Applications For New Stations:

\*Norwood, N.Y., (St. Lawrence Valley ETV Council) ch. 18, 556 kw.  
\*Watertown, N.Y., (St. Lawrence Valley ETV Council) ch. 50, 492 kw.  
Greensburg, Pa., (Western Broadcasting) ch. 40, 11.8 kw.  
\*Peoria, Ill., (Bradley University) ch. 47, 23.7 kw.  
\*Tyler, Texas, (Ambassador College) ch. 38, 350 kw.  
Medford, Ore., (Liberty Television) ch. 8, 316 kw.

### Miscellaneous Requests:

Los Angeles, Calif., ch. 4 (currently occupied) has been applied  
for commercial station operation. This challenge for  
occupancy of an existing station's channel is expected to  
be one of the first of many based on the FCC's controversial  
Boston ch. 5 decision (see Tidbits)

TIDBITS AND MISCELLANEOUS ITEMS OF INTEREST TO TV DXERS

- # The FCC has denied the following requests:
  - \*to add ch. 17 in lieu of ch. 16 at Robstown, Texas
  - \*to allocate ch. 61 for another educational television station in Rochester, New York
  - \*to assign ch. 68 to Waukegan, Illinois
- # A bill for a state ETV network in New Jersey has passed. Work has already begun on ch. 52 for Trenton.
- # KNAC (FM) 105.5 mc., apparently simulcasts English audio for bullfights carried in Spanish over KMEX-TV, channel 34 in Los Angeles
- # Recent advertising indicates that WWOM-TV, ch. 26 in New Orleans will soon be showing movies all night long every night of the week. WWOM-TV will also carry some programs from all three networks according to their promotional materials.

\*\*\*\*\*  
 \* COLUMN  
 \* CONTRIBUTORS  
 \* FOR MARCH --  
 \* Joseph Fela,  
 \* Newark, N.J.  
 \* J. Stiles,  
 \* Hollywood, Calif.  
 \* THANK YOU!!!!  
 \* \*\*\*\*\*

# In a monumental decision the FCC recently voted to take away the license for WHDH-TV, ch. 5 in Boston. The FCC has indicated it will give the license to a competing applicant formed under the name of Boston Broadcasters. The action marks one of the first times a license to operate has been taken away from an operating and established station. Although licenses have been taken away before for "ex parte" activities which disqualified applicants from retaining grants (Example: WPST-10 in Miami was taken from the owner and given to a different operator WLBW-TV) this is the first time a license has been taken away for other than shady dealings. Of course WHDH-TV will appeal the decision.

The decision could be a landmark for broadcasting and for DXers. It opens the way for other possible applicants to challenge VHF operators long-established in major markets. It could help break up the monopoly of ownership held by a few large companies in the largest cities of the United States. It could bring many new forces into play and many new people into action which would probably work for the betterment of TV in the U.S.

# Another station under fire is WBBM-TV, ch. 2, Chicago for allegedly staging a marijuana party for newsfilm cameras and then playing it as a two-part special in their newscasts -- claiming it was unrehearsed. The CBS owned-and-operated station may also be in line to lose its license.

\*\*\*\*\*

TV GUIDE AND TELEVISION PROGRAM LISTING EXCHANGE

Please make the following additions to your program listing exchange list. Once every several months we will update and publish the entire list of those who wish to participate.

<u>name and location</u>	<u>tv guide edition/listing</u>
Dave Pomeroy, 3516 Lansdowne, Apt. B, Lexington, Ky., 40503	Kentucky Edition Kentucky ETV net. list.
Paul B. Ciceri, 10733 73 Ave., Edmonton, 62, Alberta, Canada after 5/1/69, 750 Champlain Ave., Windsor, Ontario	Kansas City edition Alberta + E. British Col. until 5/1/69 -- then W. Ontario edition after 5/1
Henry Gac, 1715 Holden, Detroit, Michigan, 42808	Detroit-Windsor-Toledo edition and listings

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# FCC NEWS & DATA

GARY A. OLSON  
5901 W. BROWN DEER RD.,  
BROWN DEER, WIS. 53223.

## FM

Next month a new editor for the FCC News and Data FM column. The person chosen will likely be announced in the headquarters section of this month's VHF-UHF Digest. Yours truly will continue to handle the FCC News and Data TV Column in the future. Please support your new FM News editor with the same enthusiasm. Compiling and typing many pages of statistics each month can be a long and unrewarding chore -- except when members show their continuing support and supply additional data for the editor to make the column better.

Both the TV and FM columns will continue to appear on a monthly basis. In addition Canadian Station News will soon make its debut in the bulletin as promised last month.

### FM STATIONS OPERATING (AS OF FEBRUARY 13, 1969)

Commercial FM 1962

Educational FM 363

Total Authorized Stations On Air 2325

### STARTS AUTHORIZED (NEW STATIONS AUTHORIZED TO START OPERATION)

KADI (FM) St. Louis, Mo., 98.1 mc., 100 kw.	WHUC-FM, Hudson, N.Y., 93.5 mc., 3 kw.
KWXY-FM, Cathedral City, Calif., 103.1 mc., 3 kw.	KWIL-FM, Albany, Ore., 107.9 mc., 30 kw.
WPRE-FM, Prairie Du Chein, Wis., 94.3 mc., 3 kw.	KGUS (FM) Hot Springs, Ark., 97.5 mc., 36 kw.
*WLCC (FM) Lincoln, Ill., 88.7 mc., 10 w.	WXLM (FM) Savannah, Ga., 97.3 mc., 100 kw.
WRPC (FM) San German, P.R., 95.1mc., 50 kw.	WTZE-FM, Tazewell, Va., 100.1 mc., 3 kw.
WTLN-FM, Apopka, Fla., 95.3 mc., 3 kw.	WIXK-FM, New Richmond, Wis., 107.1 mc., 3 kw.
WGHN-FM, Grand Haven, Mich., 92.1 mc., 3 kw.	KFBC-FM, Cheyenne, Wyo., 97.9 mc., 34 kw.
KDNA (FM), St. Louis, Mo., 102.5 mc., 63 kw.	

### FCC COMPLETED ACTION

#### New Grants:

*Hinsdale, Ill., 88.5 mc., 10 w.	Macon, Ga., 107.9 mc., 20.4 kw.
Egg Harbor, N.J., 104.9 mc., 3kw.	*New Orleans, La., 101.9 mc., 50 kw.
Groton, Conn., 105.5 mc., 3 kw.	*University Heights, Ohio, 88.9 mc., 14.98 w.
Shelbyville, Ill., 104.9 mc., 3 kw.	Pocohontas, Ark., 103.9 mc., 3kw.
*Murray, Ky., 91.3 mc., 13.2 kw.	Dexter, Mo., 102.3 mc., 2.36 kw.
*Edwardsville, Ill., 88.7 mc., 50 kw.	*Randolph Center, VT., 90.7 mc., 10 w.
Chester, S.C., 99.3 mc., 2 kw.	Harrisonburg, Va., 91.1 mc., 10w.

#### Call Letter Changes:

- WCMB-FM, Harrisburg, Pa., now WSFM (FM)
- WTRC-FM, Elkhart, Indiana, now WFIM (FM)
- WNNR-FM, New Orleans, La., now WJMR-FM
- KPET-FM, Lamesa, Texas, now KELE (FM)
- WTTM-FM, Trenton, N.J., now WCHR (FM)

#### New Call Letters Issued:

- Wynne, Ark., (E. Arkansas Broadcasters) KWYN-FM
- Logan, W. Va., (Logan Broadcasting) WVOW-FM
- Brinkley, Ark., (Tri-County Broadcasting) KBRI-FM
- \*Concord, Calif., (Clayton Valley High School) KVHS (FM)

New Call Letters Issued (Continued):

- Lake City, Fla., (Deep South Roadways) WTLD-FM
- Pontiac, Ill., (Pontiac FM Broadcasting) WPOK-FM
- Hamilton, Montana (Bitter Root Broadcasting) KLYQ-FM
- Clovis, New Mexico, (Friend Radio) KMTY-FM
- Sioux Falls, S.D., (Sioux Empire) KCHF-FM
- Ladysmith, Wisconsin (Flambeau Broadcasting) WLDY-FM

Other Changes Allowed:

- KVFS (FM) Vacaville, Calif., ERP 2.85 kw. - ant. to 220'
- KOTN-FM, Pine Bluff, Ark., ant. to 125'
- KRMD-FM, Shreveport, La., ERP to 25 kw.
- \*WGTS-FM, Takoma Park, Maryland, ERP to 29.5 kw. - ant. to 165'
- KLIQ-FM, Portland, Ore., ERP to 100 kw.
- KGMI-FM, Bellingham, Wash., ant. to 2540' - ERP to 25 kw.
- KNFM (FM) Midland, Tex., ERP to 17 kw. - vertically polarized
- WDUZ-FM, Green Bay, Wis., ERP to 3 kw. - ant. 295' vert. polarized
- WBYM (FM) Bayamon, P.R., ERP to 750 w.
- WKIC-FM, Hazard, Ky., ERP to 31 kw. - ant. to 1150'
- WORJ-FM, Mount Dora, Fla., ant. to 360'
- KMAX (FM) Sierra Madre, Calif., ant to 240'
- KARM-FM, Fresno, Calif., ERP to 1.8 kw.- ant. 1870'
- KFMM (FM) Tucson, Ariz., ERP 30 kw. - ant. 73'
- KLBS-FM, Los Banos, Calif., ERP to 1.55 kw.
- \*WREK (FM) Atlanta, Ga., ERP 3.4 kw. - ant. 135'
- WVRH (FM) Columbus, Ga., circ. polarized ant. 49'
- WHKK (FM) Erlanger, Ky., ERP 3 kw- circ. pol. ant. 230'
- WJIB (FM) Boston, Mass., ERP to 8.7 kw.
- \*KIOS-FM, Omaha, Neb., ERP 26 kw.- circ. pol. ant. 220'
- WPPG-FM, Atlantic City, N.Y., ERP 50 kw.
- KRAV (FM) Tulsa, Okla., ERP 28.5 kw.
- WAWZ-FM, Zarephath, N.J., ERP to 37 kw.
- WFOG (FM) Wilmington, N.C., ERP to 50 kw.-ant. 145'
- WTPA-FM, Harrisburg, Pa., ERP 10 kw. - ant. 670'
- KEKN-FM, Bakersfield, Calif., ERP 4.5 kw.-ant. 1310'
- WTLD-FM, Lake City, Fla., ERP to 3 kw.
- WLBE-FM, Leesburg, Fla., ant. to 210'
- WKIS-FM, Orlando, Fla., ERP to 16.5 kw.
- WIBQ-FM, Utica, N.Y., ERP 25 kw. vertically polarized
- WHOK-FM, Lancaster, Ohio, ant. to 225'
- WVNO-FM, Mansfield, Ohio, ERP 50 kw. - ant 360'
- WERT-FM, Van Wert, Ohio, ERP 6.3 kw.
- \*KBYE-FM, Oklahoma City, Okla., ERP 76 kw.-ant. 285'
- WHYP-FM, North East, Pa., frequency change to 100.9 mc. \* \* \* \* \*

ACTION APPLIED FOR OR REQUESTED

Applications For New Stations:

- \*Augusta, Ga., 90.7 mc., 855 watts \* MANY \*
- Peru, Illinois, 100.1 mc., 3 kw. \* THANKS \*
- \*Urbana, Ohio, 88.7 mc., 14.3 watts \* TO \*
- \*Philadelphia, Pa., 91.7 mc., 6.3 watts \* Bill Bens, \*
- \*Kileen, Texas, 91.7 mc. (change from 88.7 mc.) \* Cincinnati, O\* \*
- Culpepper, Va., 103.1 mc., 3 kw. \* Glenn Hauser, \*
- Mountain Home, Ark., 98.3 mc., 1.4 kw. \* Lowrey AFB--\* \*
- Broken Arrow, Okla., 92.1 mc., 3 kw. \* Colo.\* \*
- Homestead, Fla., 98.3 mc., 3 kw. \* Jim Stiles, \*
- \*Honolulu, Haw., 90.3 mc., 10 watts \* Hollywood, \*
- Havana, Ill., 99.3 mc., 3 kw. \* Calif\* \*
- \*Gaston, Ind., 91.1 mc., 15 kw. \* Joe Gragg, \*
- Marksville, La., 97.7 mc., 3 kw. \* Palestine, \*
- \*Dayton, Ohio, 89.5 mc., 10 watts \* Tex. \*
- \*Austin, Tex., 88.3 mc., 10 watts \* \* \* \* \* \*

\*\*\*\*\* COLUMN CONTRIBUTORS-MAR.\*\*\*\*\*

Applications for new Stations (Continued):

- Lynchburg, Va., 98.3 mc., 3 kw.
- Lake Havasu, City, Ariz., 95.9 mc., 2.89 kw.
- Thomasville, Ga., 107.1 mc., 3 kw.
- Vicksburg, Miss., 106.7 mc., 58.41 kw.
- Crockett, Tex., 92.7 mc., 3 kw.
- Livingston, Tex., 92.1 mc., 3 kw.
- Harrisonburg, Va., 104.3 mc., 15 kw.
- \*Ft. Myers, Fla., 95.2 mc., 1.52 kw.
- Leonardtwn, Md., 97.7 mc., 3 kw.
- Jefferson City, Mo., 106.9 mc., 100 kw.

Miscellaneous Requests:

- \*KUHF (FM) Houston requests a change in frequency from 91.3 mc. to 88.7 mc.

ITEMS OF INTEREST REPORTED BY DXERS

- WOCH (FM) (ohio) 105.5 mc., now on regular schedule
- WCBK-FM (indiana) 102.3 mc., now on regular schedule
- KDNO-FM, Delano Calif., is now on the air
- KCSB (FM) Santa Barbara, Calif., is now permanently on 91.5 mc., not 91.1 mc. where they were previously

#####

COMMENTS ON THE FCC NEWS AND DATA FM COLUMN

In response to my request from several months ago, several DXers from WTFDA have kindly forwarded their comments about the FCC FM NEWS and Data Column. They are summarized for your information in the following paragraphs:

- ...the majority of those replying indicated that the column was good, filled a definite need, and was appreciated; nobody said the column was bad or not worthwhile.
- ...surprisingly there were few comments on the plethora of station information contained in the column; one DXers said "the more info the better" while a couple indicated that antenna height information was of little value.
- ...one member asked that polarization information be added; to some it may be of value so it is included (where known) this month, however there have never been any other requests for polarization information to my knowledge.
- ...one DXer had a number of style complaints: one dealt with converting all powers into either kw. or watts rather than mixing them (as in done in the Broadcasting listings); another complaint dealt with the stations suffix call letters ( shown as -FM or (FM) ) -- although some individuals may feel that the correct suffix makes no difference and need not be shown, it has been and will continue to be this editor's policy to show the station call letters as they are allocated in order to assure that call letters for FM are not confused with TV and AM calls and just to maintain accuracy as well.
- ...one DXer did not understand what "Starts Authorized" meant; I believe this has been clarified although it should be obvious to those reading the column that this refers to stations which have been given the OK to begin transmitting over the air. (This data was begun only recently since it only recently began to appear in Broadcasting's summary of broadcasting each week)
- ...one DXer said that Completed actions should be indicated compared to those which have only been authorized; this distinction cannot be made since the statistical summaries do not indicate which station have already made the changes or when they will be effective.

#####

# PROPAGATION

The propagation under the spotlight this time is known as Knife-edge Refraction.

This mode of propagation could be grouped in the Ground Wave collection, which also includes direct wave (local and fringe) and tropospheric DX, as it exists entirely in the lower atmosphere.

In this definition, refraction, diffraction, and perhaps deflection refer to the same effect. It is normally unaffected by weather patterns and is a consistent phenomenon in any area where it exists. It involves a VHF or UHF transmitter and receiver with a mountain in between. Ordinarily, one would expect no signal to be heard behind the obstacle, but as sometimes happens, a signal is heard, at a stronger level than over the same distance with no mountain in the way. It is called "obstacle gain!"

The cause is the same as for light waves. If one holds a circular piece of dark paper in front of a light source, the bright light appears as a bright edge around the paper; the light is bent or diffracted around the edge of the paper. In the same manner, a VHF or UHF signal is diffracted over the edge of a mountain.

This mode was known in the 1930's, but much of its real study began in the '50's. One of the better known examples involved reception of KENI-TV 2 and KTVA 11 Anchorage, Alaska at Lake Minchumina at 200 miles with 20,000-ft Mt. McKinley in between. KTVA had about 2 kW ERP; useable signals from both were being observed in Minchumina. Airplane readings were made in 1953-54 to determine the diffraction path from the mountain and this was reported in IPE Proceedings, August 1956. Science News Letter, 13 April 1957, had a short note about unaccountable improvement of VHF mobile radio in Korea and further tests by the US Signal Corps in areas of California with sharp peaks blocking the paths.

If pointed peaks and rather sharp-edged crests can work for knife-edge refraction, what about rounded hills? These seem to give same result according to tests. An article in IRE Proceedings, September 1958, dealt with this and compared it with sharper hills. Horizontal and vertical polarizations gave similar strengths over sharp crests, while rounded mountains gave better diffraction with vertical polarization. This information could benefit North American FM stations considering use of vertical antennas in hilly terrain.

DXing/Television Horizons, January 1960 and May 1962, reported success of reception in Revelstoke, B.C. of CHBC-TV 2 Kelowna (95 mi, 3300 W) and KXLY-TV 4 Spokane (230 mi) over peaks by diffraction, and the magazine's FM-DX section had an example of this in April-May 1960 with a Carmel, Calif. DXer hearing 10-watt KFJC.89.7 Mountain View regularly at 60 miles by this method. Also, listeners in both Carmel and nearby Santa Cruz found the Class A FMs (1 KW and under at the time) in east-shore San Francisco Bay cities very clear by diffraction while the more powerful S.F. stations were much weaker (all about 50 to 100 mi).

Ideally, diffraction is best if the intervening mountain is halfway between the transmitter and receiver. The Alaska case is an example, as is KATY-FM 96.1 San Luis Obispo, Calif. heard in Atascadero (3770 W, 15 mi) at low elevations with a 3000-foot range in between. It can work without this ideal, too. If the obstacle is closer to the receiver, diffraction can be strong but spotty, present in one spot but absent a few feet away. This is why one often sees VHF or UHF TV-FM antennas in unusual mountings in hilly areas such as a few feet above the front lawn. With the obstacle farther away from the receiver than the transmitter, the signal covers wider areas with less spotting but is weaker.

Diffraction is responsible for much west coast VHF-UHF propagation, especially with FM broadcast with many varied transmitter locations. It is noted in mountainous regions of eastern North America, too. Strong FM is possible between Knoxville, Ky. and Asheville, N.C. in spite of 6000-foot mountains in between.

Many of you in the wide-open terrain east of the Rocky Mountains will not encounter this strange mode of propagation, but if you travel and note a signal where none is expected, it might very likely be knife-edge refraction.

Dennis Smith

# FM DX

FM DX deadline 10th of each month

Editor: Roger W. Winsor  
718 N. Fremont Road  
Valparaiso, Indiana  
46383

Dennis Smith Music Department University of California Santa Barbara, CA 93106

Our southern California coastal inversion has remained almost all of the time through the fall and early winter, with resulting mostly regular San Diego area FM tropes heard here in Santa Barbara (up to 200 miles strong), thru mid-January. While at home in Wasco in late December, I heard a little DX. New local KDNO 98.5 Delano was heard, not sure of ERP and xmtr location yet, but is under 30 miles. Also a new one was hrd, over mtns, approx. 125 mi in KXIU 89.1 Los Angeles on 12-30. Strength varied from very poor to nearly noise-free. I think ERP is 710 watts. Also, KIFN 96.5 Bakersfield was noted back on AN sked. The 2 new loggings bring my Wasco total to 170. Equipment is a 1954 Fisher FM-90X mono tuner and a TACO 10 element FM yagi antenna 40-feet above ground. Ground elevation is 325 feet above sea level.

Hello again. The following is additions and corrections to my FMDX of above. The correction is this: my KXIU Los Angeles station on 12-30 is on 88.9 having changed not long ago from former 89.1 I thought it may have been 88.9, but thought my dial was further off than it is. Another reason I heard them is that they raised their power to 3kw.

In addition: I forgot to talk about tropes on FM in California central valley in late December-early January. Winter weather there is often characterized by inversion layers and fog between rainstorms. This brought in good UHF TV and fair VHF TV and FM from as far as Sacramento 240 miles, but could have been better. On my way back to Santa Barbara on 1-3 I had my Panasonic FM-AM portable in the car, and as I climbed out of the valley south of Taft, the FM stops from such as Merced (175 mi) and Sacramento (270 mi) increased in strength as I neared the boundary and the top of the foggy layer where above lay warmer dry air. This hill climb is known as Grocer Grade. Noticeably strong were KAMB 101.5 Merced and KEBR 100.5 Sacramento 50 and 125kw respect. KAMB was fighting with and occasionally wiping out local KGFM 101.5 Bakersfield (34kw at 30 mi) as I approached the top of the fog layer and continued strong but gradually weakening after above the fog, eventually going below KEGM's strength. The layer boundary was around 1500 feet above sea level. Further south, at the top of another summit, Pine Mtn. Pass at 5,000 ft ele, well south of the valley fog, apparent tropes still indicated the influence of the inversion (at least I don't think it is consistent, but I'll check again in the future). Hrd well was KAMB 101.5 @200 mi, local KGFM 101.5 @different antenna position @55 mi and KEBR 100.5 @290 mi and noted also fair signal from 3kw KJOY 99.3 Stockton @245 mi. Much of this was done with some degree of haste, so there may have been other noteworthy signals as well.

Ed note: Dennis, this is very interesting and might prompt others to check similar situations, ie travelling thru Appalachians during tropes, etc. All I recommend is that you do the listening and let someone else do the driving. Hi.

Bill Bens 5575 Spruce Wood Drive Cincinnati, Ohio 45239

Hi gang! I sure hope everybody got their fair share out of the gantastic top opening of 1-19/20, as a mid-winter warm front pushed slowly through the area pushing temps up to 60. It all started on the morning of 1-19 with excellent 100 mile tropes which developed into a 500 mile opening by midnight. DX as follows: (all times are EST, all stations confirmed via tape). 1/19 WCBK 102.3 Martinsville, Ind w/nx @12:00 followed by wx and the Sunday Show @12:09. Another new station on RS was WCHO 105.5 Washington Court House, Ohio @12:30 simulcasting AM relig. pgms. My first 10 watter, WECI 91.5 Richmond, Ind @15:00 w/PSA and ID after concert, at a distance of 44 miles. I thought this was just another super strong 100 mile opening until 2314 when I heard an Iowa wx forecast on 100.3 which was WHO Des Moines @497 mi. I never thought I was going to get their ID on tape because they didn't ID after the wx, and after 15 min. of mx, they went straight into a SSB without saying a thing! But after SSB @2330 they gave s/off annct, followed by IS. After the locals s/off @12:00, things start rolling in. 1/20 KWWR 95.7 Mexico, Mo @0002 w/Broadcasters Prayer & s/off. WBYS 98.3 Canton, Ill. w/Weekend @0008, KGRC 92.9 Hannibal, Mo. @0045 w/progressive rock on KGRC Underground which was killed by a noisy test buzz from local WAKW. WHBR 98.9 Rock Island, Ill. @ 0043 w/symphony being killed by WTMB Tomah, Wis. KCFM 93.7 St. Louis, Mo @0055 w/nx, KMOX 103.3 w/unbelievable signal @0059 CBS in St. Louis. WGEM 105.1 Quincy, Ill. @1:16 w/wx. KRCH 98.1 St. Louis @01:22 w/tenderlake spot. then WOU 103.7 Davenport, Iowa @01:30 w/s/off after Protestant Hour. All 9 stations were in excess of 300 miles on 1/20. Other stations hrd, but not logged were WUSO 89.1 Springfield, Ohio w/10 watts @65 mi, who never IDed for my tape, but mentioned Springfield quite often. Also, WTAX 103.7 Springfield, Ill. sneaked for s/off right under my nose. Seems like Springfields are a jinx for me. WEAU 104.5 Eau Claire, Wis (520 mi) was in great w/cw mx, but unkn. It will be interesting to see what Carlon Howington heard. Back during the Xmas holidays, WMPI 100.9 Scottsburg, Ind was running until 02:00 w/rr and asking for collect phone calls. I called and really shock the CE up when he found out I was listening and that WHKK 100.9, a local here, was on the air too. He insisted that I send him a report, so I did, and got a long reply in which he mentioned that he duplicated a spot off the tape I sent him onto a cart for studio use. I had a big scare here for a while last month when WZIP 92.5 started AN pgmning, but they ceased after 3 weeks. Whew! New WQMS 96.5 in Hamilton, Ohio is AN-7 w/religions pgms. WHKK Erlanger Ky, ex WKKY has increased hours until 01:00 w/religious pgms, but as shown in the case of WMPI, they don't bother me. For 3kw, they sure get out lousy. My total stations logged now is at 304 (all taped) for first 13 months of FM DXing. WTFDA sure has helped. An that's the way it is. Till next time, 73.

Ed note: Bill, your form of reporting is exactly as how I wish all would send them in, ie, typed, double spaced and in paragraph form that doesn't need any editing. I work off an extra board at the EJ&E railroad in Gary, and sometimes work 60-70 hours a week, so don't have much time, so help will be greatly appreciated at this end. Bill, you mention WZIP AN. I wish I had your location, what with all the AN stations out of Chicago. About 10 I would say.

Fred McCormack 1021 17th St. N., Fargo, North Dakota 58012

This is my first report on FM DX. I have been doing very little FM DXing recently as I am attending NDSU and am kept quite busy. My RX is at home in Des Lacs, N.D. and consists of a Heath AJ-12 stereo tuner and a Heath AA-151 amp. The antenna is JFD LPL-FM-8A, eight elements log periodic and is 30' up on top of a rotor which is presently out of order. While home last Feb. 2 I noted a DX opening of a type which I am unfamiliar with. I don't think it was tropo because none of the ND FMs were being hrd. at the time, and it didn't seem like skip either because of the consistency of the signal level. The signals hrd were all fairly weak and were all distorted. In addition there was a lot of noise around each freq. where a station was being heard. To top it off, the antenna was pointing straight north and the stns hrd were from the south and SW. Those IDed were as follows: KROC 106.9 Minn. @1958 (540 mi.), KTFC 103.3 Sioux City @2055 (475), and KFAB 99.9 Omaha @2102 (565). All times are CST. Incidentally during this reception, TV channels 2, 3 and sometimes 4 were a jumble, none of which ever approached anything on an intelligible level, either video or audio. I hope someone else in the club noted this opening and knows what mode of propagation it was as I have no idea. 73 and good DX to everyone.

(Fred, your unknown reception is a classic example of auroral CX. Geomagnetic activity took a great jump on 2/2 correlating with the time of onset of the latest auroral events. February 3 exhibited the most auroral conditions noted since the major magnetic storm of 10/29/68. RWW)

Fred Nordquist 104G Kings Park Dr. Liverpool, New York 13088

Many local and semilocal stns noted here in central NY than where I was in so. New Mexico. Here's what's hrd from Syracuse area: 1/1 WOIV 105.1, WMIV 95.1/WEIV 103.7 all 3 on CBN (Christian Bgsw Net) w/variety relig. mx 0600-2400, w/plans to go AN. WHFM 89.9 w/pwr boost, south mx. Others hrd are: WONO 107.9 w/clx mx, WMBO 106.9 MoR, WOSC 104.7 rr, WRUN 104.3 clx mx, WKRT 99.9 rr, WNEF 98.1 MoR, WHCU 97.3 clx mx, WDDS 96.1 MoR, WSIR 94.5 clx, WCHN 93.9 clx, WSEN 92.1 cw, WOTT 97.5 rr, WWOR 100.5 MoR, WMYR 101.3 cw, WRON 97.9 //, to BCB, WBFB 92.5 clx, WKOF 99.1 MoR, WAER 88.3 MoR, 1/3 WFLR 95.9 Nx @2230, CKWS 96.3 Ont. Canadian Educ. Radio System 2246, WDCX 99.5 w/relig. prog @2129. Totals now at 25. RX is Admiral console AM/FM/FM MPX Phone w/built in antenna favoring north south dir. No unusual DX to report, yet, but am hoping CX will improve up here in the snow country.

Glenn Hauser Box C 8638, Lowry AFB Colorado 80270

I finally hooked up my tuner direct to speakers and was amazed to find how much drive it has without benefit of amplifiers. So, I no longer find it urgent to get an amp. During a DX opening, when I have to hear every iota of audio, earphones do the trick. Tuner is a Harman-Kardon F1000T and the antenna is a Winegard CT90 shared w/TV, about 25' above ground on an Alliance T12 rotor. I discovered that my JFD FM booster is more harmful than helpful in this area of many powerful locals, so am not using it. Denver has 10 locals, and I am weekend amr. at stereo classics KDEN 99.5. Other stns recvd at times are KGRE 92.3 Greeley, KFME 93.3 Ft. Collins, KKFM 96.5 Colo. Spgs, KRNW 97.3 Boulder, KLOV 102.3 Loveland, KCMS 102.7 Manitou Springs, and KIMO 104.3 Longmont. KRYT 101.9 Colorado Springs was noted once with a weak signal. No luck on non-commercial band.

Hauser (Cont'd.)

President Nixon brought with him a winter FM Es opening on Jan. 20; hopefully a good omen for the next 4 years, hi. Only station identified was WDSU 93.3 New Orleans at 1075 miles, noted at 1815 CST w/ID,wx. At 1813 two stations were hrd on 92.1, one cw, one clx. KVCL Winnfield, LA was probably one of them, judging from simultaneous TV skip from KALB-5 Alexandria. Between 1815 and 1819 unID skippers were noted on 98.1, 94.5 and 93.7, probably Shreveport. Thus, my Denver FM total has reached 19 stations. Until the next, 73 de Glenn.

Bob McArthur 11305 Lee Hwy, Fairfax, Virginia 22030

Greetings from a new member. I live in the Washington, D.C. metro area and am a part time student and full time proletarait. I've been FM DXing since August 1965, when I acquired a used Fisher FM-200B tuner at a fairly decent price of \$120.00. At the time though, I was living in a first floor apartment and had to DX with TV "rabbit ears". Now, however, I live in a house and use a rotatable outdoor antenna, tho not of good quality and do considerably more DXing, which I tape record.

So, far I've logged only 16 states, but hope to double that next summer. Farthest catch to date: KMFA 89.5 Austin, Texas. Best low power catch :WHOV 88.3 Hampton, Va. 135 miles, which stated power as 10 watts. Only other "accom plishment" is my having logged all but one station in Maryland according to 1968 Broadcasting Yearbook listings. Sole exception is WCUM 102.9 Cumberland.

One unfortunate thing about this area is many DC stations are on 24 hours a day 6 or 7 days a week. These include WJMD, WMOD, WGAY, WWDC, WPGC, WGMS, WAVA and WXRA. Worst of these is WPGC, which programs for the insomniac teenybopper. "Bubble gum music" is their current top hit.

For anyone interested, WDYL 92.1 Chester, Va., 3kw is now on the air. Also WBOC 104.7 Salisbury, Md. now runs about 30kw. (VJ 68 lists 30kw Bob)

Information needed: Does anyone know xmtr site for WKWK 97.3 Wheeling, W. Va? I hope it's in Ohio. Also, do any WTFDXA members live in the DC area? G'bye for now.

Well, that's it from here for this month. A good column, and I hope everyone enjoys reading it. I again apologize for my lateness, etc, but it a real challenge to raise 4 girls, a wife, 2 dogs and a cat, and maintain any semblance of sanity. Hi. I noted the 2/2 auroral CX, but didn't attempt to log anything on either TV or FM. BCB is my bag during these months, and many good catches were gotten. Still no evidence of WRIO 92.1, so must not be on RS yet. WJJD-FM 104.3 is now running clx mx 0600-1200, then duplicate AM. AN-6 stations in Chicago are : WEBH, WFME, WKFM, WJJD, WEAW, WNUS, WFMT, and WSDM. I have been noting sync bars on channel 3 lately when pointed due south, so perhaps some of you lucky fellos in Ark, Ala, and Miss are experiencing some ES. Hope to hear from as many members as possible this next month. 73 from Rog.

# STATISTICS

EDITOR: Glenn Hauser  
 Box C 8638, Lowry AFB  
 Colorado 80230, USA.

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Reporters. Your editor expresses his sincere appreciation to those who have contributed their UHF and highband VHF records so far: Bob Astmann, David Cox, Bill Draeb, Morrie Goldman, Bill Heusmann, Carlon Howington, Steve Kamp, Mark Lewis, Fred McCormack, Ambrose Maxim, Frank Merrill, Gary Olson, Jerry Pulice, Dennis Smith, Jim Stiles, Frank Wheeler. Why don't you join the list?

Trops and FM records. Bill Heusmann and Carlon Howington want to see a separate listing of lowband tropo records. So do I, but this will have to wait until our current series of highband/UHF is completed, scheduled for later this year. Carlon also expresses interest in a station-by-station, frequency-by-frequency, FM tabulation of best distances. I feel this is not too practical, considering the huge number of FM stations on the air. More likely we will try to determine the distance records for each of the 100 FM channels. Proposals from others on what kind of FM statistics we should have are welcomed.

## TV STATIONS THAT AREN'T WHERE YOU MIGHT THINK

Noting some question recently in reports columns over which states certain stations transmit from, I suspect it's time for a replay, with updating, of a list I prepared from TV Factbook for CADEX several years ago. Although many stations transmit at a considerable distance from their city of license (e.g. WPBN-7, 33 miles south of Traverse City MI; WVAN-9, 36 mi west of Savannah GA), only those whose state is in question are listed here. TVF lists xmtr QTHs for virtually all cases, often by reference to small towns missing from many maps...but the geographical coordinates are always given. Keep in mind that this listing is more or less current and that things change from time to time. (WRBL-3 was once in Alabama but is now really in Georgia; WOR-9, way, way back, was in New Jersey, etc.) Since we DXers are concerned with aerospace propagation, rather than microwave or cable, it seems only logical to count up states by transmitter rather than studio locations. That's why you see an occasional listing in this column alphabetized under an adjacent state in parentheses. Unless listed here, those stations which identify with two cities in adjacent states are in fact transmitting from the original or primary state of license (e.g. KOAM-7 is really in Kansas, although not in Pittsburg.)

Call	Ch	Nominal QTH	Real State	Precise Transmitter Location
KIVA	11	Yuma AZ	CA	8 mi W on US 80
KBLU	13	Yuma AZ	CA	Black Mtn, 17½ N of Ogilby (NW of Yuma) CA
WHYY	12	Wilmington DE-Phila. PA	NJ	Glassboro
WDCA	20	Washington DC	MD	Bethesda
WETA	26	Washington DC	MD	Bethesda
WEAR	3	Pensacola FL-Mobile AL	AL	Rosinton (WNW)
WCTV	6	Tallahassee FL-Thomasville GA	FL	Lake Iamonia (NNE)
WJBF	6	Augusta GA	SC	Pine Log Road, nr Beech Island
WRDW	12	Augusta GA	SC	Pine Log Road, nr Beech Island
KLEW	3	Lewiston ID	WA	3NW Clarkston, 2½SW US 95
WLHT	25	Evansville IN	KY	Marywood Dr, Henderson County
WAVE	3	Louisville KY	IN	Bald Knob, New Albany
WHAS	11	Louisville KY	IN	Christian Rd, 3.6N New Albany
WLKY	32	Louisville KY	IN	Floyd's Knob, nr New Albany
WDRB	41	Louisville KY	IN	4NW New Albany, ½E St Mary's Rd
KTAL	6	Shreveport LA-Texarkana AR-TX	LA	2.3NNW Vivian, W of County Rd
WMTW	8	Poland Spring ME	NH	Mt Washington
WRLP	32	Greenfield MA	NH	Bolton Rd, Winchester

(more)

WTEV	6	New Bedford MA-Providence	RI	Tiverton
KDAL	3	Duluth MN-Superior WI	MN	Duluth
WDSM	6	Duluth MN-Superior WI	MN	Duluth
WDSE	8	Duluth MN-Superior WI	WI	Superior
WDIO	10	Duluth MN-Superior WI	MN	Duluth
KHQA	7	Hannibal MO-Quincy IL	IL	Columbus Rd, Quincy
KTVO	3	Kirksville MO-Ottumwa IA	MO	US 136 nr Lancaster
KOMC	8	McCook NB	KS	9W Oberlin on US36
WKBS	48	Burlington NJ	PA	Philadelphia
WNJU	47	Linden NJ-New York NY	NY	Empire State Bldg, NYC
WNDF	13	Newark NJ-New York NY	NY	Empire State Bldg, NYC
WXTV	41	Paterson NJ-New York NY	NY	Empire State Bldg, NYC
WJAR	10	Providence RI	MA	Rehoboth
WPRO	12	Providence RI	MA	Rehoboth
WCYB	5	Bristol VA-TN	TN	Rye Patch Knob, Cherokee Natl Forest
WHIS	6	Bluefield WV	VA	East River Mt
WTAP	15	Parkersburg WV	OH	Dole's Knob, Constitution OH
WTRF	7	Wheeling WV	OH	RDL, Kirkwood Hts, Bridgeport OH
CKSA	2	Lloydminster Alta-Sask	Alta	110°0'40" W longitude; 53°17'0" N lat.
CKCD	7	Campbellton NB	PQ	Harrison Brook
"CBFST2"	12	Temiscaming PQ	Ont	Thorne

To the best of my knowledge, this is an exhaustive list, except that all US translators and Canadian translators (satellites) below 100w were not checked. Thanks to KBTv-9 for the use of their Factbook. (Checking a station copy saves considerable money, and allows one to meet such interesting people as "Debby Drake," hi)

OTHER "STANDARDS"

The premise of the list above represents one cardinal standard for state-counting. But a number of other problems arise when we begin to compare each other's totals. There has been sufficient interest expressed in beginning a "rank" listing by number of stations received, so now we must decide what constitutes a "station" and what does not. The following proposals are based on Gary Olson's February 1962 AIPA column, but I have made certain adaptations in keeping with the times.

1. A station may be counted twice if it changes channels, but changes in offset frequency on a single channel are not included.
2. A station may not be counted twice if it leaves the air and then returns on the same channel.
3. A station may not be counted twice on the basis of a change in call letters, unless the two are totally unrelated and there was an interval when the channel was vacant.
4. A station may not be counted again when ownership changes or transmitter is moved. If the move is across state lines, the station may be counted for each state, but one "duplication" must be subtracted before totalling the number of states received.
5. A station changing location per city of license may not be counted twice, whether or not a change in transmitter location also occurs.
6. If a DXer changes his location by more than 75 miles, he must begin a new log, separate from the old. The same applies for concurrent DXing from two different locations. Composites may be made of two or more locations, no matter what their separation, but the DXer's standing in rank shall be based on the largest total from a single location or pair of locations within 75 miles of each other. The DXer may, however, keep separate logs within the 75 mile limit if he wishes.
7. Translators are to be counted just as any other station.

(more)

8. Sharetime stations may not be counted as two stations unless they use different transmitter locations.
9. Stations received via CATV may be counted, but the distance must be measured from the station's transmitter to the CATV off-the-air reception point. Subsequent microwave or cable transmission distances may not be included.
10. Stations received by CATV radiation may be counted if
  - (a) the reception was not deliberately staged by the DXer, i.e. he did not place his receiver next to a cable terminal just to get radiation over a few feet; and
  - (b) the station has been converted to a channel other than its original one, or the channel is not a relay of a broadcast television station (e.g. local weather dials, etc.) and
  - (c) the propagation path was not entirely inside a building.
11. Tentatively received stations may not be counted. Only the DXer himself can decide whether the reception is tentative or definite.
12. Verifications are not to be considered positive proof of reception. They may aid a DXer in deciding beyond a reasonable doubt, whether he actually received the station. If a station positively received does not verify, this should not prevent its being counted.
13. These standards are compromises, to make comparisons of totals more significant, and must be adhered to only in reporting to this column. For his own personal purposes, or reports to other columns, a DXer may count stations however he pleases.
14. These will be the official WTFDA standards unless enough opposition arises to a particular section for a vote to be taken, in which case a simple majority of votes cast shall decide the matter. OK?

CHANNEL 7 SKIP TVDX RECORDS

Call	Location	Prop	Miles	DXer, Location	Comments
KLZ	Denver CO	Es	975	Ron Pugh, Fort Bragg CA	
WCKT	Miami FL	Es	1265	Glenn Hauser, Enid OK	
WBKB	Chicago IL	Aur	2480	unidentified ARO, Thule Greenland	now WLS
KWWL	Waterloo IA	Es	1430	Stan Brown, Barstow CA	
WNAC	Boston MA	MS	825	Bill Draeb, Kewaunee WI	
WXYZ	Detroit MI	Aur	240	Carl Boecher, Milwaukee WI	
WITN	Washington NC	Es	1135	Glenn Hauser, Enid OK	
WITV	Charleston SC	Es	1040	Glenn Hauser, Enid OK	
(CMBF)	Ciego de Avila Cuba	Es	1330	Rich Lowry, Temple TX	now CMFD (CMQ)
TOTAL for 9 stations			10720		

CHANNEL 7 TVDX RECORDS  
(Trops, groundwave, unknown)

WCIQ	Mt Cheaha State Park AL	130	David Cox, Carrollton AL	was WTIQ
KATV	Pine Bluff AR	745	Don Ruland, Holly Hill FL	
KABC	Los Angeles CA	860	Doris Johnson, Longview WA	
KRCR	Redding CA	390	Dennis Smith, Wasco CA	also KVIP
KGO	San Francisco CA	305	Ed Albright/Charles Wood, Mt Ashland OR	
KØ7HA	Springville CA	45	Dennis Smith, Wasco CA of KLYD-17, now KJEO-47	
KLZ	Denver CO	65	Glenn Hauser, Leavdille CO	via CATV
WMAL	Washington DC	345	T. Sproule, Toronto Ont	
WJDM	Panama City FL	900	Ferdinand Dombrowski, Watertown WI	was WJHG
WBKB	Chicago IL	660	Glenn Hauser, Enid OK	now WLS
KHQA	Quincy IL	975	John Cody, Middletown CT	

(more)

WTVW	Evansville IN	555	Richard Nieman, Buffalo NY	
KWWL	Waterloo IA	985	John Cody, Middletown CT	
KAYS	Hays KS	745	Bill Meers, Lagrange KY	
KOAM	Pittsburg KS	620	Bill Draeb, Kewaunee WI	
KPLC	Lake Charles LA	760	Enrique Veazey Fernandez, Ci del Carmen Mexico	
WENT	Bangor ME	45	Thomas R. Sundstrom, Bernard ME	
WNAC	Boston MA	385	J. W. Collier, Arlington VA	
WYYZ	Detroit MI	470	B. J. Bingham, Festus MO	
WLAU	Grand Rapids MI	345	E. Gustafson, Keokuk IA	now ch 8, WOOD
WPBN	Traverse City MI	485	B. J. Bingham, Festus MO	
KCMT	Alexandria MN	655	Glenn Hauser, Enid OK	
WDAM	Hattiesburg MS	725	Morrie Goldman, Chicago IL	
KLNE	Bassett NB	150	Stu Grade, Sioux City IA	
KETV	Omaha NB	875	David Nieman, Buffalo NY	
KOAT	Albuquerque NM	700	Carl Dabelstein, Omaha NB	
WASW	Buffalo NY	455	Bill Draeb, Kewaunee WI	
WCNY	Watertown NY	255	Frank Wheeler, Erie PA	now WWNY
WABC	New York NY	805	Barney Rauch, Peoria IL	was WJZ
WETH	Washington NC	510	Clinton T. Day, Westerly RI	
WHIO	Dayton OH	1035	Nick Bocker, Brandon Man	
WTRF	Wheeling WV (OH)	875	Clarence Fleagle, Abilene KS	
K07FX	Gage OK	105	Glenn Hauser, Enid OK	
				of WBAP-5, nominally KOCO-5
KSWO	Lawton OK	395	Dave Pomeroy, Overland Park KS	
KOAC	Corvallis OR	160	Eddie Albright, Medford OR	
WSPA	Spartanburg SC	695	Bill Draeb, Kewaunee WI	
WDXI	Jackson TN	270	Bill Meers, Lagrange KY	now WBBJ
KVII	Amarillo TX	495	Bedford Brown, Hot Springs AR	
KTBC	Austin TX	1000	Don Ruland, Holly Hill FL	
KOSA	Odessa TX	575	Bedford Brown, Hot Springs AR	
KLTV	Tyler TX	690	Bill Meers, Lagrange KY	
WLBJ	Roanoke VA	635	Bill Draeb, Kewaunee WI	
KIRO	Seattle WA	135	Pat Martin, Seaside OR	
WSAU	Wausau WI	725	Glenn Hauser, Enid OK	
CJAY	Winnipeg Man	215	Fred McCormack, Des Lacs ND	
CKRT	Riviere du Loup PQ	85	Ghislain Girard, Arvida PQ	
CHLT	Sherbrooke PQ	215	Ghislain Girard, Arvida PQ	
CKOS2	Carlyle Lake Sask	110	Fred McCormack, Des Lacs ND	properly
	TOTAL for 48 stations	25360	+ 10720 (skip) = 35080	CKOS-TV-2, now CFSS

Analysis. Your editor leads the "skip" category with 3 stations at a total of 3440 miles. Trops etc. wise, Draeb, 2405 miles; Hauser, 2210; Cody, 1960; Ruland, 1745; Meers 1705. Hauser has 5 more records, Draeb 4 more, Meers 3, and many others 2 or 1. Some stations for which no non-skip records have been found are: WJCT Jacksonville FL; WCKT Miami FL; KTVB Boise ID; KRSD Rapid City SD; KUED Salt Lake City UT; WITV Charleston SC; KSPS Spokane WA; CJLH Lethbridge Alta; CKMJ Marquis Sask; XELD Matamoros Tams; XHGO Tampico Tams; WRIK Ponce PR.

CHANNEL 14 TVDX RECORDS

WOOK	Washington DC	150	Dennis Smith, Little Creek VA	now WFAN
WFIE	Evansville IN	455	Bill Draeb, Kewaunee WI	was ch 62
KMEG	Sioux City IA	460	Bill Draeb, Kewaunee WI	
WJZB	Worcester MA	435	Dennis Smith, Little Creek VA	was WWOR
WCMU	Mount Pleasant MI	265	Mark Lewis, Downsview Ont	
WMUB	Oxford OH	215	Morrie Goldman, Chicago IL	
KLPR	Oklahoma City OK	70	Glenn Hauser, Enid OK	now off air (more)

WEBA	Allendale SC	385	David Cox, Carrollton AL
TOTAL for 8 stations		2435	

Analysis. Draeb, 2 records, 915 miles total, and Smith, 2 records, 585 miles total.

## CHANNEL 15 TVDX RECORDS

KEBS	San Diego CA	195	Dennis Smith, Santa Barbara CA
WBLN	Bloomington IL	285	Bill Draeb, Kewaunee WI
WCHU	Champaign IL	390	Dave Pomeroy, Lawrence KS
			was ch 33 and WICD-24 Danville, now WICD
WANE	Fort Wayne IN	340	Mark Lewis, Downsvie Ont
			was WINT
		tie	David Nieman, Buffalo NY
WFPK	Louisville KY	440	Bill Draeb, Kewaunee WI
WICA	Ashtabula OH	380	Bill Draeb, Kewaunee WI
WTAP	Parkersburg WV (OH)	280	David Nieman/Richard Nieman, Buffalo NY
WLYH	Lebanon PA	235	Dennis Smith, Little Creek VA
			was WLBR
WVEC	Hampton VA	430	Russell Ashworth, New Bedford MA
			now ch 13
WMTV	Madison WI	495	Mark Lewis, Downsvie Ont
TOTAL for 10 stations		3470	/WHRO-15

Analysis. Draeb leads, 3 records at 1105 mi; Lewis, 2, 835; D. Nieman, 2, 620; Smith, 2, 430.

## CHANNEL 16 TVDX RECORDS

KMOG	Ventura CA	25	Dennis Smith, Santa Barbara CA
WUSI	Olney IL	390	Bill Draeb, Kewaunee WI
WNDU	South Bend IN	385	David Nieman/Richard Nieman, Buffalo NY
		tie	David Kanaar, Buffalo NY
WBBC	Salisbury MD	335	Bill Grant, Worcester MA
KUHI	Joplin MO	625	Bill Draeb, Kewaunee WI
WKTR	Kettering OH	365	Bill Draeb, Kewaunee WI
WENS	Pittsburgh PA	60	John Parillo, Girard OH
			now off air
WQEX	Pittsburgh PA	470	Bill Draeb, Kewaunee WI
WNEP	Scranton PA	630	Bill Draeb, Kewaunee WI
TOTAL for 9 stations		3285	was WARM

Analysis. Bill Draeb walks away with channel 16: 5 records totalling 2480 miles!

## CHANNEL 17 TVDX RECORDS

KRNB	Bakersfield CA	200	Robert Cooper, Modesto CA
WTVP	Fort Lauderdale FL	40	Carlton Howington, Homestead FL
			now off air
SEC	Miami FL	15	Ronald F. Schatz, North Miami Beach FL
WDLJ	Atlanta GA	215	David Cox, Carrollton AL
WAND	Decatur IL	550	Mark Lewis, Downsvie Ont
			was WTVP
WEVO	Rockford IL	490	Mark Lewis, Downsvie Ont
			was ch 39
KTCI	Saint Paul MN	275	Bill Draeb, Kewaunee WI
WBUF	Buffalo NY	200	Carlton Howington, Uniontown OH
			now off air
WNED	Buffalo NY	455	Dave Janowiak, Milwaukee WI
WCHT	Schenectady NY	285	Mark Lewis, Downsvie Ont
WJAN	Canton OH	405	Bill Draeb, Kewaunee WI
WPCA	Philadelphia PA	105	Art Friese, White Plains NY
			now off air
WPHL	Philadelphia PA	335	Mark Lewis, Downsvie Ont
TOTAL for 13 stations		3560	

Analysis. Lewis, 4 records, 1660 miles; Draeb, 2, 680; Howington, 2, 240 miles.

Revised lowband records must be held over.

Until the next, 73 de Glenn

# BOB'S TECH-NOTES

## TECH NOTES - The Blonder Tongue BTX-11 UHF Converter

The B-T UHF to VHF (tuneable) converter is the recommended method of UHF DXing, in as much as the outboard UHF (tuner) converter is a few db superior to even the best in-set UHF tuners.

B-T tells you to hook up the converter as shown in diagram one, ie. UHF antenna to UHF input on converter, VHF antenna to VHF antenna input, and a short piece of 300 ohm twinlead inter-connecting the the converter output to the TV set (VHF) 300 ohm input. They also tell you to tune your TV set to either channel 5 or 6 (the one not in use in your area) and then tune the UHF converter dial to receive the UHF channels on either 5 or 6 of your receiver.

When the converter is on (two positions on front panel throw switch - on and off) the UHF antenna is connected into the UHF converter, the converter is turned on (solid state - almost instant warm up) and the TV set receives the UHF spectrum, converter to VHF (channels 5 or 6).

When the converter is off, the UHF antenna is left 'hanging', and internal switching within the BTX-11 connects the VHF antenna input, on the converter, directly to the VHF antenna terminals on the TV set.

This 'convenience switching' of the VHF antenna, thru the converter to the TV set, is common practice in all outboard UHF converters. Recently I swept-tested the efficiency of this switching arrangement to ascertain how much VHF antenna signal is lost (if any) when the VHF antenna signals are switched through the converter. I also checked the output tuning, on channels 5 and 6, when the converter is in the UHF position, to see what difference in performance there is between channels 5 and 6, as an i.f. channel. The tests were performed on two BTX-11 UHF converters I happened to have on hand. They were separated in serial number sequence by more than 100,000, so I assume that the two units tested would represent a fair time span in the production of this UHF converter unit.

Test procedures were those common to CATV, utilizing a Jerrold 601-D VHF Sweep Generator, suitable marker generator, CATV modified oscilloscope, various signal pads, and a broadband (dc to 900 MHz) detector. My results were these:

- (1) The TV set terminals (the output terminals on the converter) exhibited an undesireably bad impedance match (ie. some signal is lost) on channels 10,11,12,13, and to a small extent, on channels 5 and 6. The loss in VHF signals fed thru the converters 'convenience switching' is greatest on channels 11 and 12; more than 1 db in the best case, approaching 2 db in the worst case.
- (2) The VHF antenna terminals (on the converter) also exhibit an undesireable impedance match (ie. measureable signal loss) on channels 11,12,13 and to a smaller extent on channels 5 and 6. Thus a VHF antenna connected to the TV receiver, through the converter, will have cumulative and measureable losses on channels 5,6, and 11,12 and 13 with the cumulative losses on channels 11 and 12 probably as much as 3 db.

- (3) Both units tested had optimized impedance matching on channel 6, when the converter was on (ie. set up for converting UHF signals to channel 6). The roll-off (loss of UHF to VHF converter gain) on both units began about halfway down into channel 5, which means that as far as transfer of energy out of the converter, the efficiency of the transfer (and the performance of the converter) is better at channel 6 than at channel 5. Performance at channel 4 and below (ie. using channel 4 or below to receive the output of the converter) was seriously degraded in the stock (non-modified) units. The manufacturer tells you this, incidentally; he did not intend that you use it on 4 or below, although some do attempt to.

Interestingly enough, the transistor i.f. amplifier built into the converter (this converter has a transistor booster stage that operates on the i.f. channel or output channel of the converter; either 5 or 6) has a very high - high end - roll off. By this I mean that the gain of the transistor i.f. amplifier, which one would expect to cover channels 5 and 6, and no more, goes on up very nicely into the FM band - as high as 92 MHz in one unit.

This brings up a most interesting SUPER DX installation possibility for the serious UHF DXer.

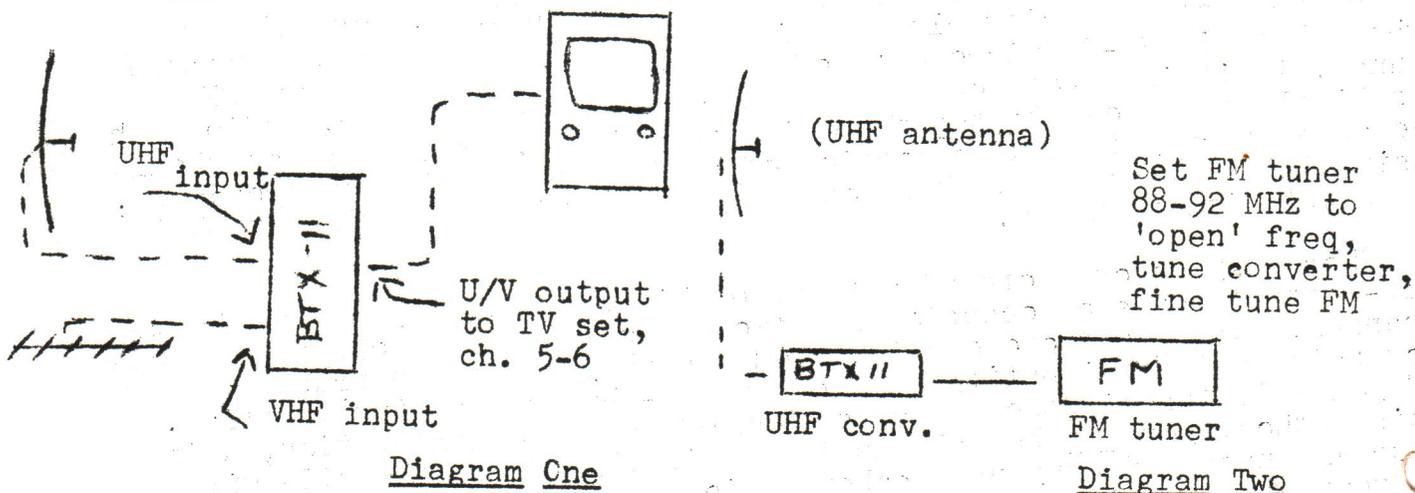
By connecting the output of the converter (TV set terminals) to the antenna input terminals on your FM tuner, as shown in diagram two, you substitute your sensitive FM tuner for the audio (sound) portion of your TV receiver. Set your FM tuner to some completely clear FM channel in your area, preferably down in the educational FM band between 88 and 90 MHz. Turn on your UHF converter and listening for the audio out of your FM installation, tune for the sound of a weak UHF TV station. As you tune your BTX-11 converter, you will also hear the picture information (video carrier) of the TV signal as you tune through the spectrum. The TV audio will appear UP in frequency (further clockwise with the BTX-11 dial) from the video.

The advantages to this arrangement are as follows. Your TV set is capable of producing clear audio (sounds that you can understand) when there is 20-25 microvolts of TV signal fed into it. Your FM tuner, if it is a good one, can produce very sharp, clear, audio with as little as 2 to 5 tenths of a microvolt input. In theory you should be able to copy the audio portion of a distant UHF station broadcast, using this arrangement, when your TV set doesn't even tell you that a UHF station is there!

There may be one more advantage to this system. If you live in the mid-west and have on occasion had two or more UHF stations on the same channel, during a tropo opening, you probably have been frustrated at not being able to identify the weaker (co-channel causing) station. If you will tune in the audio portion of the stronger station, using this method, you may be able to tune slightly off to the side with your FM tuner and copy the weaker audio. This has a chance of working if your FM tuner is a good one, and if the stations are operating off-set from one another (ie. 10 or 20 kc apart, but on the same channel).

There are limitations to this system, and you should be advised of them.

- (A) TV audio is FM, but the amount of deviation is limited to plus/minus 25 kilocycles (kc). FM audio is also FM (how about that!) but it is a higher fidelity FM, and the amount of deviation allowed is plus/minus 75 kc. This means that TV audio will come through fine on the FM tuner (everyone has copied channel 6 audio on their FM tuner I assume) but the FM tuner will not work at quite peak efficiency in making intelligent sounds from the 25 kc deviation signal. This is not a practical problem - I note it only to short circuit the fellow who has already made up his mind to write me about it!
- (B) The TV stations must maintain their carriers within 2 kilocycles (2 kc) of their assigned frequency. That is, they cannot drift around their channel and still be legally operating. It is doubtful that you would ever notice a 2 kc drift on your TV receiver. It is possible you may notice it on your FM tuner. It is more likely, however, that your UHF converter will drift around (maybe as much as 10,15 or 20 kc!) in a single ten minute period. If the converter drifts, the audio will drift off the dial spot you have it on, on your FM tuner. You may have to follow it around the FM tuner dial a little if you stick with the audio very long.
- (C) The knob (tuning dial) on the BTX-11 is not a vernier dial. It is broadly tuning, and it is difficult sometimes to even tune in a weak UHF station. Blonder-Tongue has very thoughtfully provided a 'fine tuning' dial on the BTX-11. Once you have tired of trying to 'set down' the UHF audio on your pre-tuned and pre-selected spot on the FM tuner, with the broad tuning dial on the BTX-11, use the 'fine tuning dial' to put the UHF audio on frequency on the FM tuner. Since the converter will drift, keep your hand free to re-tune either the fine tuning of the converter, the FM tuner, or both, when instability sets in!



I will be interested in comments from members who try this scheme. With a little practice you should find it possible to double the range (distance) of UHF regular (non-opening) reception. And during an opening - who knows how much further you will get?

Bob Cooper, Jr. KV4FU

# EASTERN TV DX

Morrie Goldman WA9RAQ  
8046 South Euclid Ave.  
Chicago, Ill. 60617

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This column is for all television reporters east of the Mississippi River • MARCH  
Deadline: 15th of each month

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## '69 Starts Off Right!

It appears that 1969 has started off right for TV DX with an excellent trop opening occurring in late January. The opening, which provided long haul DX of high strength, apparently struck in different locations on different days. January 18th, 19th, and 20th seemed to be the best days for midwestern DXers while easterners found their best DX on the 20th, 21st, and 22nd. In reviewing this months reports, this shift from east to west is clearly seen.

DXer Richard Tidberg of Winnebago, Illinois pulled in KOMC-8, McCook Nebraska among others using only indoor rabbit ears! KTSB-27 Topeka Kansas and KUHI-16 Joplin Missouri were received by both Bill Heusmann of Steger and your editor over paths well in excess of 400 miles. Dave Pomeroy in Lexington, Kentucky received UHF signals as far as Peoria, Illinois (330 miles) using only an indoor antenna. In Kewaunee, Wisconsin, Bill Draeb logged KMTC-27 Springfield, Missouri. Indeed it was an opening to bring back memories of December 1967. Winter tropes may not be as common as those of summer and fall, but they certainly can provide the DX!

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In other January - February happenings, both aurora and Es were reported on several occasions with the 2nd of February providing the strongest aurora.

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Gary A. Olson, 5901 W. Brown Deer Road, Apt. 107, Brown Deer, Wis. 53225

"I apparently missed most of the big tropes opening which struck the midwest from Jan. 18-21. However, a phone call from Ferdie enlightened me that something was up. I should have guessed that things were much better than the usual drab winter routine when I woke up to my clock radio on Jan. 20; the announcer on WGN was reading the nx and mentioned that Chicago police radio reports had been mixed up early that morning due to 'freak atmospheric reception'. He said the Chicago police were led astray by police radio reports from Louisville, Ky. and Philadelphia, Pa. When I finally got hep the night of 1-20 I logged: WEEK-25, WMBD-31, Peoria; WHA-21 Madison; WCEE-23 Freeport; and WTVO-17, Rockford as new. On 1-21 I recvd new ones WKOW-27 Madison and WMTV-15 Madison. This brings my Brown Deer log to a poor 35 total. I'm hoping for better things next summer despite the locals and the problem with my tuner; at least I have channel 2 open here!"

Ferdie Dombrowski, HQ (CST)

Monday morning (1-20) at 0030 after WITI's late movie I looked around the dials and found WEEK (tent), KWVL-7, QRM on WLUK-11 and WGN-9. I vowed to get up in the morn before six and did. Channel 6 was in weakly, tent WOC-6, but most activity was in bands 3 and 4, as they say in Europe: WPBN-7 strong, WBKB-7 later, KHQA-7 tent, WOOD-8 fair, WKBT-8 later, KRNT-8 tent, WGN-9, WWTV-9, KROC-10 weak, WLLX-10 tent, UnID-11 very weak until WLUK s/oa, WHO-13 w/tp, WZZM-13 tent, & CCI, WMTV-15, WTVO-17, WEEK-25, WMBD-31, (all uhf were good to v. good) KWVL-7. Judging from the offset patterns, ch 10 had another stn in; WTHI or KTTS. On 13 likewise; WEAU or KRCG was in. So thats about for the period 00-0900. Nothing new of course, as these were all stations from my Okauchee days. Haven't seen WHO-13 in an awful long time so I'm quite pleased about that.

Support WTFDA...REPORT

Bill Draeb, Ellis Street, R. R. #2, Kewaunee, Wisconsin 54216 (CST)

1-19: Trops- 2100 WUSI-16 (new, like a local), WAND-17, WLFI-18, WIRL-19, WICS-20, WEEK-25, WEHT-25, KMTC-27 (new, poor video under WKOW - only IDed by audio), WMBD-31, WLKY-32, WFLB-14, WICD-15. 1-20: Trops- 0505 WCPO-9, WHO-13, WLWI-13, 0516 WFBS-6, 0530 WJW-8, 0540 WHT-10, 0545 IHTP (KMBC-9?), KROC-10, 1230 WICD-15, WAND-17, WICS-20, WEEK-25, WMBD-31, 1610 WIRL-19, KMTC-27, 1900 WICD-15, 1945 WCMU-14, WUCM-19, WKNX-25, 2200 KHQA-7, WGEW-10, WQAD-8. 1-21: Trops- 1632 WICD-15, WUSI-16, 1820 WAND-17, 1830 KWVL-7, KCRG-9, 2000 WIRL-19, WEEK-25, WMBD-31. 2-1: Trops- 2200 WKNX-25, WKBD-50, WXON-62, 2230 WDHO-24. 2-2: Trops- 1015 WJW-8, WISH-8. January 19, 20 & 21 were exceptional and I guess that was the case in most of the mid-west. The two new stations bring my total to 391 which includes 102 on UHF. I also noted some strong aurora on the evening of 2-1 which covered chs 2-9. It was probably a little higher than that ch.11 here slops over on 10 and I couldn't tell if there was anything there as it was pretty weak on the high band. Last night (2-5) there was some more aurora, but only up to ch.6. 73, Bill. (Bill, your unID IHTP of 1-20 probably was KMBC. I also noted the tp at the same time and later vfd it by mail as KMBC. MG)

Fred Nordquist, 104G Kings Park Drive, Liverpool, NY 13088

Greetings. The big switch from NM (Army) to NY (GE) results in new DX location, located 13 miles at an angle of 36° west of north from Syracuse's WSYR-3, WHEN-5, & WNYS-9 antenna. Due to temporary apartment living, only rabbit ears fed into '69 RCA 23" color rx is permissible. Hope to move into house by June for Es season. Here are local ex: locals 3 5-9 mess up (24, WCNY-24 ETV, WROC-8, WHEC-10, & WOKR weak; WNNY-7 very weak, CKWS-11 and WNEF-12 very weak and WKTU-2 w/moderate signal. No trops seen yet, nor any off season Es. Noted some aurora on 2-2 on ch.2, but nothing noted in the fluttering signals. You can't win: in NY it was CATV QRM, and here, it's strong locals w/late-late shows. Hope all have a good DX season this year. 73. (Welcome to the east, home of strong locals and late-late movies! MG)

Bill Grant, 16 Goulding Street, Worcester, Mass. 01609 (EST)

1-22: 2200 WVTM-41 Windsor, Vt. (new, via trops). 1-23 2230 WPHL-17 Philadelphia, PA (by trops). 22 MUF's have dropped off. No European TV audio noted through listening time was very limited. Had a very strong aurora (affecting chs 2-6) on 2-2.

David Cox, Box 16, Carrollton, Alabama 35447 (CST)

1-20: UnID-2 1830 SS on Es; probably YSR, KTVI-2 (tent - new) St. Louis, Mo. 2000, 1-21: WGTU-8 Athens GA 2200 w/s/off, WJHG-7 Panama City, FL 2200 after WCIV s/off. 2-6: YSR-2 San Salvador 1800, XHY-2 Merida, Mexico 1815, 2-7: WLOX-13 Biloxi, MS (NEW) 2300 audio only o/WAPA for a few minutes. 2-8: WALA-10 Mobile AL 0015 w/late nx & s/off; WWL-4 New Orleans (NEW) 0000, WTVY-4 Dothan AL (NEW) 0000 after WCBI s/off, WLCY-10 Largo, FL (NEW) 0018 w/nx & s/off at 0028; WDAM-7 Hattiesburg 0100 w/RETMA TP; WLWB-10 Miami FL (NEW) 0135. Total now stands at 134. I think my new Sears 9" portable will be all right as it pulled WLCY and WLWB from the mud. They are my best trops so far. Wish I had a rotor! Best of DX to all! (I hope that you get a rotor in time for the Es season. With your prime DX location and a rotor, your totals should really climb! MG)

Mark Lewis, 224 Honiton Street, Downsview, Ontario Canada

It is my sad duty to report that on January 28, 1969, my antenna system made up of 1 Crown automatic rotor, 1 Channel Master 2610G deep fringe VHF head and 1 Jerrold JUP-4 deep fringe parabolic dish, fell due to the affects of high winds and freezing rain. The damage wasn't too bad, but we are heavily insured after last years mishap, one year and one week to the day. The rotor broke off from the housing clamps and the antennas toppled over destroying one smaller VHF B&W ant. and bending the dish a little bit too. With \$300 insurance coverage, and a few elements missing from last years fall, I have filed a claim with the insurance company for \$200. Therefore, the following is probably the last DX report for the Jerrold Parabolic. I noticed in the February Digest that you had heard reports of an opening on the 18th, 19th and 20th. That weekend, I was pretty tied up and only home for short periods of time, however I don't recall any DX activity till Monday. At that time, we were having a fantastic thawing period, when high temperatures soared into the upper 40's and even hit the 50° mark one day.

On the 22nd, the Erie weather at 11pm read as follows: temp. 48° and 55° the next day. On the evenings of 1-22, 21 and 22, extraordinary color signals were rcvd from WXXI-21 Rochester, WJET-24 and WSEE-35 in Erie. Reception continued to improve until 11pm each night when reception peaked. On Wednesday, 1-22, in the afternoon, weak signals from WUAB-43 Lorrain Ohio (205 miles), WBF-62 Cleveland, (evening) WWIZ-25 Cleveland, WSKG-46 Binghamton NY, WDAV-22 Scranton; Great signals from WQLN-54 Erie and WSEE-35, extremely strong; even better than the Buffalo locals which were very much above average. At 11pm WJET-24 Erie came in the strongest that I've ever seen it in the past year and a half. WWXX-21 Rochester was even stronger than the signal that I get from CFTS-9 Toronto which is 325 km. As I recall, the weather changed the next day here, during the DX. I had no new loggings, but I bet that any loggings to the east of yours were these stations. I hope to get approval from the insurance company within the next few days to put up a CDE AR-22 rotor, and a Delhi VHF-UHF Deep Fringe. It will be the 1st one of its kind in Toronto, as they just came out and there are few VHF UHF antennas in use in this city. They're in stock because store owners are anticipating the long delayed power increase of WNED-17 Buffalo. According to an ad that I read, they said that the UHF section of the antenna was comparable to a parabolic; I doubt if it will perform as well as the JUP-4, but I have no other choice since the dish falls down too much. 73's and best of DX, Mark

Dave Pomeroy, 3516 Lansdowne, Apt. B, Lexington, Kentucky 40503 (CST?)

This is my first report from east of the Mississippi since moving from Kansas Jan. 1. The following stations are normally rcvd; the four Lexington stations are the only ones adequate for normal viewing: WAVE-3 Louisville, Ky., WCPO-9 Cincinnati, Ohio, WHAS-11 Louisville, Ky., WLEX-18 Lexington, Ky., WKYT-27 Lexington, Ky., WKSQ-29 Somerset, Ky., WKYK-32 Louisville, Ky., WOCR-38 Morehead, Ky., WKLE-46 Lexington, Ky., W -52 Owenton, Ky., WRIG-62 Lexington, Ky. The first and only real DX opening here came on 1-19 with fairly strong trop from the north. The following was noted: WSBT-22 South Bend, Ind. 9:30pm; WLSB-19 South Bend, Ind. 10:00pm; WED-31 Peoria, Ill. 10:35pm; WISH-8 Indianapolis, Ind. 11:00pm; WKYC-12 Cincinnati, Ohio 11:00pm; WEEK-25 Peoria, Illinois 11:30pm; WOTR-14 Oxford, Ohio 11:37; WITV-4 Bloomington, Ind. 11:45pm. 1-20: WKTR-16 Kettering, Ohio 12:15pm; 2-1. WRIO-7 Dayton, Ohio 9:30pm. Also rcvd was an UNID NET station at approx ch. 48 that must have been WJST-48. Quite a bit of CCI on UHF & VHF trop was noted on 1-19. With no local V's this should be a good area for Es. I'm looking forward to that time. Total here stands at 21. Best of DX, Dave

Robert B. Cooper, Jr., PO Box 1355, Frederiksted, St. Croix I.S. P.I. 00840

TV TE fell off after the end of the third week in January, but TE was observed from Brazil and elsewhere on ch. 2 on January 22, 23, 24, 25, 27, 28, 30, 31; February 4, 5; I had what looked like Es 2100MHz on 2-1 on ch. 3, for ten minutes, from a state-side beam heading. No ID. Had one of the very few infrequent Es openings over the southern Caribbean the evening of 2-7 from 1730 EST to after 1930 EST. Positive Ided TV-2, Televisora Nacional, Panama, Republic of Panama during that period. TV-2 has test pattern without any lettering until 1815 EST, then s/cn. They alternate public service messages until 1830 and then had a Linus cartoon. Intro in English but the cartoon was Spanish. Also had ORM from what looked like YSR-2 in El Salvador during the same period, but no positive ID on this one. TV-2 (Panama) had a 200r beat with semi-local WVAQ in San Juan, and since San Juan had a 42 offset, I must assume that TV-2 is -2 offset, for future reference.

Ron Anarkiewicz WREHU, 5412 S. Bridge, Chicago, Ill. 60620 (CST)

This is my first report for EDX and for WJDA for that matter. I'm 15 years old and am majoring in electronics at McGie's old high school, CV3. The BCR DX bug has hit me as I scan the radio dial almost like I scan the TV bands. Equipment for TV is a JFD LFV 300 Antenna and a 15-year old UNID with the old "DX Finder" range on the back. I'd like to know if anybody else has the same thing and how it performs. On 1-20, I experienced the best trop opening I've seen in my 2 years as a TV-DXer: WWIZ-25 Cleveland 5:40AM 311 miles; WNED-31 Peoria, Ill. 6:43AM 130 miles; WEEK-25 Peoria, Ill. 6:52AM 130 miles; WLUK-11 Green Bay, Wis. 7:05AM 210 miles; WAKR-23 7:18AM Akron, Ohio 320 miles. 2-10: Noted Es, but nothing ID. Boy what a lousy winter Es season,

MARCH 1969

but there's always June & August. 73, Ron

Bill Heusmann, 3116 Sangamon Street, Steger, Illinois 60475 (CST)

This month there wasn't any Es CCI worth noting; aurora proved fruitless, but trop provided 16 new stations. Conditions were good on the evening of 2-18, but I didn't notice the opening until Sunday, 1-19. Around 1100 that morning, I caught KPLR-11 St. Louis with local strength and CCI. From then on, it went like this: 1124 KMTC-27 Springfield, Mo. (410mi.); 1129 KUHI-16 Joplin, Mo. (460 mi.) (At that time w/local strength. Later CCI became so intense that only b&w bars were visible.); 1130 KODE-12 Joplin, Mo.; 1130 KMEG-14 Sioux City, IA (445mi. tent report vfd); 1140 KTSB-27 Topeka, KN (445mi.); 2015 WMUB-14 Oxford, OH (205 mi.); 2015 WCET-48 Cincinnati; 2055 WUSI-16 Olney, IL.; 2055 tent WSIU-8 w/hvy CCI; 2100 KRCG-13 Jefferson City, MO; 2105 WSWO-26 Springfield, OH (220mi.); 2143 WUAB-43 Lorain, OH tent; 1-20: 0625 WFMJ-21 Youngstown, OH (355mi.); 0626 WKBN-27 Youngstown, OH; 0627 WVIZ-25 Cleveland, OH (w/wedge tp and local like quality); 0633 Probably WLMY-32 Louisville KY - (didn't wait for ID); 0633 WTOL-11 Toledo in all morning; 0642 WKBD-60 Detroit; 0645 CBS rx o/ WIMA-35; 0650 W71AE-71 LaSalle, IL (75mi) w/WMBD tp (Nice catch BILLING); 0658 WCEE-35 Erie, PA (385mi) IDed o/WIMA; 0700 KTSB-27 Topeka, KN w/s/on; 0701 KHQA-7 Hannibal MO o/WLS-7 local; 0707 WAKR-23 Akron, OH (310) (local quality w/IDed color bars); 0716 WTVS-56 Detroit, (w/ID & tp. Seemed strangely weak); 0724 WKEF-22 Dayton, OH (ID slide o/ WSBT-22 South Bend. New stations were KTSB-27, KMTC-27, KODE-12, WMUB-14, WSWO-26, KRCG-13, WSIU-8, KMEG-14, KUHI-16, WUAB-43, W71AE, WSEE-35, WKBN-27, WFMJ-21, WKEF-22 and WVIZ-25. My totals have finally reached that 200 mark. the only thing that marred this joyous occasion was the fact that my new camera had jammed and I was unable to photographany of those IDs. Oh, well at least most of these stations have vfd, so I have some proof of reception. On 2-6 Es like CCI was noted to the SE. CCI was even noted on ch.6 and a ch.4 station seen could have been WCIV, due to offset.

Morrie Goldman WA9RAQ, Editor (CST)

This last month provided plenty of action here, with the January trop opening and Es noted on a few occasions. 1-18: KFVS-12 Cape Girardeau, MO and KODE-12 Joplin, MO both fighting it out with each other all evening. 1-19: 1017AM KPLR-11 St. Louis, MO and CCI from KTHV-11 Little Rock, Ark. (I was surprised to see KTHV for the second time in four months!); 1025 WKTR-16 Dayton, OH w/hvy CCI from WNDU-16; 1030 KUHI-16 Joplin, MO (480mi) w/ hvy CCI from WUSI??; 1055 KTTN-10 Springfield, MO; 1140 KTSB-27 Topeka, KN; 1149 KMTC-27 Springfield, MO; 2034 KRCG-13 Jefferson City, MO; 2107 WSIU-8 Carbondale, Ill.; 2203 WCET-48 Cincinnati, OH; 2210 WMUB-14 Oxford, OH; 2226 WSWO-26 Springfield, OH; also seen were about all the common stations in WIS, IL, IND, OH & IA. 1-20: 0030 WEHT-25 Evansville, IN; 0047 KPLR-11 St. Louis, MO; 0520 WCPO-9 Cincinnati, OH; WKJG-33 Ft. Wayne, Ind.; 0527 WHO-13 Des Moines, IA; 0531 Indian head tp on nine, later vfd as KMBC; 0540 WTHI-10 Terre Haute, Ind.; 0540 WBNS-10 Columbus, OH; 0540 WTOL-11, running a tp, broke off momentarily to reveal WIIIC-11 Pittsburgh, PA; 0600 WKRC-12 Cincinnati, OH; KFVS-12 Cape Girardeau, MO; WANE-15 Ft. Wayne, Ind.; 0601 WIMA-35 Lima, OH; 0630 WHIZ-18 Zanesville OH; 0641 WFMJ-21 Youngstown, OH; 0701 WKEF-22 Dayton, OH o/ WSBT-22 South Bend, Ind.; 0709 WAKR-23 Akron, OH; 0718 WTVS-56 Detroit Mich.; 0740 WDHO-24 Toledo, OH; 0741 WIRL-19 Peoria, IL; 0745 WLEI-13 Lafayette, Ind.; 0745 WCEE-23 Freeport, IL; 0758 WQLN-54 Erie, PA w/ a fantastic signal; 0800 WOUB-20 Athens, OH; 0805 WOSU-34 Columbus, OH. Then unfortunately, I had to leave for school and a final exam! By the time I got home, about 1200, things had pretty much faded. 1-21: Good trop all day to Peoria, Springfield IL, etc. 2-2: Aurora noted in evening; no IDs. 2-6 Es noted at 1545 to SE; no IDs. 2-10: Aurora noted on ch.4; no IDs. 2-11: Aurora noted all day; Es noted 1600-1800 SE; only ID was WTVJ-4 Miami, FL. 2-23: Pos. Es from SE at 1737 PM. 2-25: tent audio reception of BEC-1 0900 to 0930 using S-94 and indoor dipole. 2-27: aprox. 0645 WEEK-25 and WMBD-31, both Peoria. From 1-25 to 2-1, I spent my semester semester break at my sisters in sunny Augusta, Ga. While there, using indoor rabbit ears, I noted the following: (Locals: WJBF-6 Augusta WJBA-14 Allendale SC, WCES-20 Wrens Ga., WRDW-12 Augusta, WATU-26 licensed to Augusta but actually in Beach Island, SC) WFBC-4 Greenville SC, viewable occasionally, but usually very weak; WAN-9 Savannah GA, noted once on 1-27 at 1226 EST; WIS-10 Columbia SC, viewable occasionally; WSPA-7 Spartanburg SC, noted quite often; WSAV-3 Savannah

GA, seen daily; WSB-2 Atlanta, noted only once, 1130 EST on 1-26; WCSC-5 Charleston SC noted once, 1-30 at 1630 EST. Besides enjoying the 70° weather and that small amount of DX, I visited Augusta's WZZW-FM. This automated station, running under 5kw, says that they have never recvd a DX report! On 2-16, I attended a hamfest in Wheaton IL and finally got a good UHF converter! The converter, a Standard - Kollsman nuvist-er model, is much lower noise and much higher gain than my old Techmaster. I can finally say that I get a good picture from WSBT-22 South Bend, all the time. Since I got the converter, I've also noticed that Peoria is in on UHF quite often in the mornings. I don't know how I managed with that old Techmaster all these years!

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Its really good to see WTFDA has such a large percent of active members! This months column had a total of 12 reporters alone. If you total up this number with the number of other members reporting in past months and in the FM, VHF and WDX columns it comes to a rather sizable total. By comparing this percentage of reporters to the percentage in other clubs, one can see WTFDA has among its members some of the most avid DXers in the DXing hobby. Of this, we can be proud!

Once again I must remind EDX reporters to please include your time standard with your report. A report can be confusing if this is not given.

73 and best DX to all, Morrie WA9RAQ

## STATION BREAK

Editor: M. Goldman  
8046 South Euclid Ave.  
Chicago, Ill. 60617  
Deadline: March 18

For Sale: 35 issues of S-9 magazine dating through July 1967. Issues are in top condition and contain a number of valuable articles on TV, AM, FM, DXing, and other material aside from the usual citizens band matter. Will accept best offer & postage for shipment. Wanted: Jerrold Trap-Ease; tunable model for ch 2-6, and or tunable model for ch 7-13. Will pay \$12 per unit for working models in decent condition. Gary Olson, 5901 W. Brown Deer Rd., Apt. 107, Brown Deer, Wis. 53223

FOR SALE: National NC-60 communications receiver, \$25; used, but not very much. F. Dombrowski, Box 5001, Milwaukee, Wisconsin 53204.

A5 Magazine Devoted to amateur TV... Subscription: \$2 per year (6 issues). Sample copy upon request. A5 Magazine, 150 Delong Avenue, Dumont, NJ 07628

Wanted: Any or all AIPA bulletins. Bill Heusmann, 3116 Sangamon St., Steger, Illinois 60475

XACTO type hobby razor knife blades. 25¢ per package of 5, or 3 packages for 50¢, postpaid. M. Goldman, 8046 South Euclid Avenue, Chicago, Illinois 60617

WTFDA still has a limited quantity of some VUD back issues. To members, the cost is only 25¢ PO BOX 5001, Milwaukee, Wisconsin 53204

Ads in by March 18 will still be run free of charge; for all ads after that date a charge will be necessary.

### Rates:

Member (non-commercial) 2¢ per word. Non-member (non-commercial) 5¢ per word. Commercial 10¢ per word. Other ad rates, such as for custom or full page ads, upon request.

CC1

Bill Heusmann  
3116 Sangamon St.  
Steger, IL 60475

In case you haven't noticed yet, CCI now has a new editor. I hope I can carry on the good work started by Gary. If anyone objects to any format changes which may be made, or has any to suggest, please say so. If we do not hear from you, we can only assume that you are completely satisfied. Of course, if you have ANY information or unIDs, get them in by any means. Jot them on a postcard, scrawl them on the back of an old grocery list, it doesn't matter. Your information is the important thing; neatness doesn't count!

Despite that big trop opening, there are no new unIDs. A few IDs, at least, were made.

Morrie Goldman's MS bursts of a CBC tp on Dec. 13 and Jan. 3 have been verified by CBOT-4, Ottawa, the suspected station. His channel 6 MS bursts of a religious program at 04:32 on Dec. 13 and of a movie at 04:30 on Jan. 3 may have been from WBRC, Birmingham, AL. A July, '67 TV Guide shows them coming on at 04:30 with 'The World Around Us'.

David Cox's unID of Dec. 2, on channel 17 is almost certainly WMCV, Nashville. Passing thru the city last July, your editor noticed several billboards advertising WMCV's programs. It seems a safe bet that they were already on the air then.

Regarding Frank Merrill's Eastern Canadian skip station on channel 4 with zero offset (June 24, '68), CJCB-TV Sydney, NS is the only Maritime station with no offset.

Bill Draeb had an unIDed IHTP on channel 9 to the southwest. This on January 20, at 05:45. Morrie Goldman saw the same thing and had it verified by KMBC, Kansas City, a nice catch.

Your editor has given some thought to that 'KSTL-3' seen by Jerry Police on July 8. A search for radio stations with similar call letters (which may have been misread) in the area from which the skip was coming has not netted a thing. Since the chances of his having received an ad for KSTL on KTVI-2 by mistuning or misalignment are practically non-existent, this one still remains a mystery. Nothing has come of last month's other unIDs, also. Even though there are no new mysteries to work on, those old ones are as unsolved as ever, so let's get to work!

In closing, remember the immortal words of Bob Hope, who, upon his return from Moscow said, 'Sure, they've got TV in Russia, only it watches you!

Another reminder for all members to please send to HQ a list of any stations that to know the test pattern types of. If you don't know what the type name for the test pattern is, send a photo or rough drawing along. The completed list will be published as an aid to TV-DXers. Your co-operation would be appreciated.

WKEF-22 Dayton, Ohio received by Morrie Goldman, Chicago, on January 20th. For details on this and other DX, see this month's Eastern DX column.



VHF  
92AD90

"Dealing with the VHF radio world  
from 30 to 54 MHz"

by: Bob Cooper, Jr. (KV4FU)  
P.O. Box 1355  
Frederiksted, St. Croix  
U.S. Virgin Islands 00840

### DX REPORTS

DX reports are actively solicited for appearance in this column. There has never been an 'organized' DXing effort in this area of radio, and we can all profit by sharing our own new meager knowledge with others of similar interests.

For the un-initiated, the shortwave 'VHF' radio range from 30 MHz to 54 MHz offers as much fascination as perhaps any other form of DXing activity. Between 30 and 50 MHz are virtually tens-of-thousands of two-way radio transmitters. Some are licensed to police departments, others to fire departments, others to the various state highway patrols. There are thousands of private systems, including oil companies, logging companies, radio paging systems (which we have covered in some detail), and just plain 'John Q. Business-man', directing his trucks and personnel.

Virtually all of these users of the 30-54 MHz spectrum are daily satisfied when they can communicate, reliably, with their mobile units 20-25 miles away from their 'base' stations. When skip conditions exist and you 'log' a transmission from a 'base' (ie. a fixed unit, such as at an office) or a 'mobile', 500, 1000 or 2,000 miles distant, you are intercepting their message(s) at distance far-far greater than their 'radio system' was intended to cover. This in itself is fascinating. When you remember that typical base stations have 30 to 100 watts of power, and typical mobiles 30-50 watts, reception at a point 1,000 miles or more distant is truly amazing. And in truth, most of us use low cost, not very sensitive, 'monitor' receivers and low, ineffective antennas.

Its entertaining and informative to 'listen in' on police calls, and other 'private' messages, even when DX conditions do not exist and we must be satisfied with the stations in our own locale.

Although we ourselves have not gone in for reporting reception to the stations heard, and asking for verifications (veries) from the stations, we suspect that some have. If you have any experience in this area - we'd like to share your experiences with others right here. Let us hear from you!

Bill Smith writes ...

Bay State DX'er Bill Smith of Uxbridge, Massachusetts writes "... observed a short skip opening on six meters (50-54 MHz) the evening of December 23rd. Stations logged included (amateur) K4SAC, Greer, South Carolina who was running 6 watts (!), W4GDS, W4BGK, Athens, Georgia. I also copied some SSB (single sideband) signals but my Radio Shack Dual Band Monitor can't decipher the SSB signals so well! Antenna is a Hy-Gain 30-50 MHz ground plane at 30 feet. Thus far have logged 16 states on six meter AM with 12 verified."

Bill's note about six meter amateur loggings, via skip, is most appreciated. Chances are excellent that while he was logging these stations TV channels 2 and 3 were being received well in New England from the South Carolina-Georgia-Florida area.

### Bill Grant Writes ...

...from Worcester, Massachusetts that F2 (long range) DX conditions were quite poor from December 1 to 22 with no observations above 40 MHz in that period. On 12-22 he did copy weak European TV audio just above 41 MHz. On Christmas day he observed the highest (in frequency) MUF of the fall (and probably of this current sun spot cycle). Between 1000 and 1230 EST the MUF exceeded 42 MHz and peaked at 48 MHz at 1100 EST. Many Spanish speaking stations were copied up to 48 MHz, and between 1120 and 1125 EST he copied a two way English conversation between two stations in Port of Spain and San Fernando, Trinidad, here in the west Indies. On 12-29 he again caught European TV audio at 'fair levels', around 41.5 MHz.

His loggings for the month of December are as follows:

- 35.22 MHz - Fresno, California paging - 12-7 at 1515 EST  
- San Juan, Puerto Rico paging - 12-14 at 0925, 12-25 at 1235 and 12-29 at 0930 EST
- 35.58 MHz - Oklahoma City, Oklahoma paging - 12-1 at 1125, 12-4 at 1345, 12-22 at 1040, 12-25 1110 to 1220 EST  
- Houston, Texas paging - 1225 at 1230 EST  
- Long Beach, California paging - 12-12 at 1310, 12-29 at 1125 EST
- 41.25 MHz - CRTF (France TV audio) - 12-1 1005 to 1110, 12-22 1008 to 1015 EST, 12-25 1035 to 1130, 12-29 1010 to 1030 EST
- 41.50 MHz - BBC (England TV audio) - 1005 to 1210 on 12-1; 1005 to 1040 on 12-22; 1005 to 1205 on 12-25; 1000 to 1115 on 12-29.
- 43.22 MHz - Los Angeles, California paging - 12-1, 1330 EST
- 43.57 MHz - Mexico City paging - 1030-1140 on 12-25.

That was some Christmas present Bill!

### F.S.D. writes ...

... from Milwaukee. Fresno, California paging (35.22) was logged by Ferdie on 2, 3 and 4 January from approximately 1115 to 1215. San Juan paging was noted 0915 to 1115 on the 4th of January also. Are these EST F.S.D.? His receiver is the new dual bander from Allied (covers 30-50 and 152-174 MHz). His antenna is non-descript, and was still inside in his living room for these loggings!

### Here in the V.I.

F2 conditions did a turn about around the middle of . The big change actually began around January 10-15. Since late in August

I have had daily loggings of the 35.58 MHz radio paging stations, from the states, never missing a date. In mid January the MUF began to skip days now and again and pretty soon the 35.58 radio paging stations from the states began to be 'rare' again.

The same Christmas present that brought Bill Grant good conditions in Massachusetts provided the only 50 Mhz (six meter) F2 from this location into the states proper. Around 1000 to 1100 EST I worked on six meters a handful of stations in Iowa, Nebraska and Wisconsin. At the same time I was getting excellent copy on 43.58 from radio paging stations in Buffalo, Cincinnati, St. Louis and elsewhere in the upper mid-west.

The last of the 43 MHz stuff was logged on 12-30 when Mexico City page was heard on 43.57 from 1120 to 1130 EST. Some un-identified state-side 43.58 stations were also heard between 1240 to 1245 of that date.

On January 10th I began to get evening TE type reception from South America once again. Conditions up through the first of February have been marginal in this respect, with only a few decent dates. On January 13th, 8 PM EST, CX5AAP in Uruguay was copied well on six meters here. Between 8:40 PM and 9:20 PM EST that date I worked two stations near Lima, Peru on six meters.

Mid-January is early in the year for South American TE to return, even here in the Virgin Islands. This suggests a better than could be expected spring season of TE type reception is coming up, since it is usually March before this type of reception returns. TE reception usually lasts well into late April, just about the time that our summer E<sub>s</sub> season returns. This suggests that any sporadic E openings you observe to the south from your location, between 7 PM and 10 PM EST, which be watched carefully for signs of Brazil, Argentina, Peru stations. Remember please my advise about TE TV DX - forget about trying to make any sense out of the video (picture) and concentrate on the audio portion. With it you stand your best chance of identifying the station you are receiving. Remember one other important fact: TE brings reception from stations south of the equator. The first skip or hop, from Brazil or Argentina or Peru is one long one, via TE, that brings the TV signal back to ground someplace in the middle Caribbean latitudes. From there to your location is probably just one sporadic E hop. And passed over entirely are the closer South American stations north of the equator, in places such as Venezuela and Columbia.

### What The Summer Will Bring

The summer DXing season is just ahead. For 30-54 MHz listeners this means a return of E skip. Via E skip you will hear single hop stations 500 to 1,400 miles distant in the 30-54 MHz range. If there is double hop around and about, you will hear stations up to 2,500 miles distant. You will always hear skip in the 30-54 MHz range before you begin to notice it on TV channels 2-6. This makes 30-54 MHz listening important because by hearing skip in the 30-54 range, in the 500 to 1400 mile region, you know that TV DX skip (via E<sub>s</sub>) cannot be far behind. Try keeping a log of paging stations heard in the 35.22, 35.58, 43.22 and 43.58 channels. Compare these with your TV DX log and you will soon discover that when you hear a certain station on the radio paging channels, TV DX from a similar area of the country can be forecast.

# WESTERN TV DX

Dennis Park Smith  
Music Department  
University of California  
Santa Barbara, California 93106  
Deadlines: 12th of each month

MARCH 1969

Reporters to this column caught some DX in January and early February, and there are some good discussions in addition. Since the New Year, Es in this column has occurred in January on these dates: 2 6 7 20 26 30.

Lance Clayton Muller, 8895 Halsted Street, San Diego, California 92123

Hi guys. No DX here. But in answer to some questions, I would say Los Angeles is quite weak here, especially with my antenna set-up. I have a simple conical which has the mast set in a pipe in the ground, a clamp on the eaves to hold the mast, and a total height which just barely reaches over the top of the house (the antenna is on the south side of the house). I can turn the mast by leaving the screen off the window and putting my arm outside. The TV is just below the window, so I can watch the picture as I turn the mast. How's that for a manual antenna rotator? Saves money, decreases L.A. signals, but gets me wet when it's raining, hi! I also take pictures of DX with a Mamiya-Sekor 1000TL single-lens reflex, with tri-x or plus-x at either 1/60 or 1/30 and correct f/stops. I then just develop the negatives and mount them in paper slide mounts. For verification, I send the slide, and ask the station to just reverse the monitor polarity. 73's, and good DXing!

(Your mast is quite similar to mine in Wasco, Lance, except mine is 46 feet high with guy wires at 38 feet. I can turn it with a handle at the bottom of the mast beside the house but not in view of the receiver. Thanks for interesting information. Speaking of rain, we've really had our share around here and it's still coming down, along with the underwater gusher problem which you have probably heard about. And they say oil and water don't mix! dps)

Stanton K. Wigh, 2165 14th, Kingsburg, California 93631

January can be summed up in one word: sparse. I had Spanish speaking channel 2 here on Jan 6 & 7. Then nothing until the 26 when I logged KMID-2 in Midland, Texas, 1830 PST. Jan 30 brought some more Es to the north. At 1620 PST I saw a slide for the CBC but no station ID. At 1700 I logged KREM-2 in Spokane, Wash. And that is it.

There was a fair trop opening on Feb 3; I logged KLOC 19 Modesto for the first time and KTXL 40 Sacramento-Stockton was as strong as those stations in Fresno! KTXL is severely affected by trop here; it will range from absolute nothing to absolute everything. 73.

(Your extensive monitoring of ch. 2 certainly brings results, Stan. I hope by next time, we will both know for sure of our KQED-9 UHF translator DX. dps)

Glenn Hauser, Box C 8638, Lowry AFB, Colorado 80230

November and December went by without any Es being noted, and I was about to call it a winter when a nice opening up to 98 MHz occurred on Inauguration Day, 20 January.

Call	Ch	QTH	Miles	CST	Comments
KALB	5	Alexandria LA	915	1750	Huntley-Brinkley, 1758 United \$ Stores, 1803 LSU nx, 1809 Winnfield's First Federal, 1810 Baton Rouge nx
KBTX ?	3	Bryan TX		1806	nx of Texas A&M; tentative, never seen at my other QTHs
KATC	3	Lafayette LA	970	1807	local nx
WDSU	6	New Orleans LA	1075	1810	ID in passing during news
WBAP	5	Fort Worth TX	660	1814	TX wx, "here in Fort Worth."

The opening was very welcome, although some of that midwest trop would have been even nicer. KTVS-3 Sterling CO is noted some mornings before locals on 2 & 4 come on, as 3 January at 0729. These, combined with 8 locals and XEFB-3 previously seen, bring my Denver total to a paltry 14 stations. I now have my CT90 antenna and T12 rotor up apx 25 ft above ground, and am debating whether to get set for UHF from Kansas and Nebraska.

A friend of mine in the Canal Zone, E. Douglass Souigny, 2Lt, USA, has supplied some info on Panamanian television. The logo of Tevedós (ch 2) is a plump rabbit with one hand on hip, other in the air with two fingers extended. Station is also relayed on 6, 9 and 2. The other network is RPC, on 12, 7, 6, 12 and 4. Typical shoddy timing, with programs usually starting plus or minus 10 minutes from sked time. Sign on is around 1115 or 1130 EST. The many ads are not subject to the usual American restrictions, e.g. Kotex. Doug also sent a week's schedule for SCN (AFRTS) on ch 8 and 10. Until the next, 73 de Glenn. (Good info, Glenn; thanks. dps) Best to all--Dennis

# PLANNING THE ULTIMATE TV DXING INSTALLATION

" A FOUR PART SERIES FEATURE DEALING WITH TV DXING TECHNIQUES AND EQUIPMENT TO ASSIST YOU IN PLANNING YOUR OWN EQUIPMENT REQUIREMENTS "

by: Bob Cooper, Jr. (KV4FU)  
P.O. Box 1355  
Frederiksted, St. Croix  
U.S. Virgin Islands 00840

(Part Two)

## The Antenna Story

We touched briefly on antennas in our opening section dealing with co-channel interference. Our point there was to show how the receiving pattern of an antenna can drastically alter your ability to 'phase out' the signal of a strong, semi-local station and pick-up (increase the strength of) a more distant station on the same channel. Ten years ago all manufacturers of antennas advertised to TV dealers through such trade journals as Radio-Electronics. These advertisements almost always included antenna gain patterns, such as those we used in part one of this series (illustrations One A-D). Now however manufacturers seem less prone to divulging their antenna patterns, and this makes selection of an antenna for DXing, based upon published data, difficult at best!

In the previous mention of antenna patterns, we noted that the LPV (log periodic) antenna pattern is cleaner, i.e. it has much smaller minor or side lobes, than an antenna of the yagi configuration. This seemingly makes the LPV a better antenna for DXing, even tho the front lobe or nose of the LPV pattern is nearly 50% broader than an equivalent yagi antenna. We also noted, however, that the LPV has, generally, lower gain (i.e. is less sensitive) than a yagi of the same physical size (i.e. same length of boom).

The LPV is definitely a better consumer antenna than a yagi design antenna, in most cases, be-

cause it provides cleaner color with nearly uniform gain on all channels, and it is easier to orient (being broader in front lobe). But is it the best antenna for DXing?

The early day all-channel (2-13) antennas were modified yagis. The original yagi was and still is a single channel antenna. The modified all-channel versions have short (high band) and long (low band) elements interspersed on the same boom, and the two (actually) separate low and high band elements are electrically tied together in a phasing (matching) line to a common downlead point. As a consequence, such antennas are compromises. They compromise the unequalled gain that you can get with a single channel yagi with the attractiveness (to the customer and antenna installer) of an all-channel (2-13) antenna that performed (after a fashion) across the VHF channel range. However - it was the uneven gain of a yagi (down on channels 2,3, up on 4,5, down on 6, down on 7,8, up on 9,10,11,12 and down on 13 - just as an example) that led to the development of the LPV antenna.

For reference, a given LPV antenna of X boom length - (Note: it is electrically convenient to compare two antennas by comparing two separate or different antennas of the same boom length. This keeps us comparing apples with apples and oranges with oranges, or as nearly so as possible in antenna comparisons. We compare

an 8 foot long LPV with an 8 foot long all-channel yagi, but not an 8 foot long LPV with a five foot long all channel yagi.) will have just about the same gain on channel 2 as 6 and on 7 as on 13, although the gain on 2 may not be the same as on 13. But all-channel (2-13) yagi antennas (such as Winegard and others have produced through the years) may have higher gain than the LPV on some channels (such as 4,5,8,9,10) and lower gain than the LPV on others. With an all channel yagi, the gain of the antenna is not uniform across the entire range, and sometimes not across a single channel. The latter often makes for poor color reception on some channels.

No all-band (2-13) yagi is higher in gain than an equivalent (same boom length) LPV, on all channels .. only on some. But again, no LPV (remember apples for apples) will have as high gain on some channels as the yagi does - on the yagi's best channels.

So you end up about even. The LPV is more constant; the all-band yagi is sometimes higher (and some times lower). The LPV has a broad front pattern; the yagi has a narrow front pattern. The LPV has a few if any (\*) side lobes or a back lobe, the yagi always has a few.

(\* - An LPV antenna will provide very low side or rear lobe pick up, only when it is mounted well above ground, the roof, and away from nearby metallic objects such as power lines. When an LPV is mounted close to the ground (within 30 feet for large models) or close to metallic objects (within 50 feet in the same plane or level or within 30 feet radius for off-level objects), the LPV tends to lose its clean lobe structure and will develop some quite strong rear and side lobes. The same is true with a yagi antenna, but to a lesser extent. Therefore extreme care mu-

st be taken when mounting an LPV - it must be high and clear. If you cannot mount the antenna high and clear, you are better off on ALL regards with an all-band (VHF) yagi antenna.

The best antenna for DXing purposes is a well designed single channel yagi antenna. Two identical single channel yagis, stacked together with proper stacking lines, is better yet.

What is a well designed yagi? Unfortunately, the yagi market for TV antennas has just about stopped in the past five years, so heavy has the LPV influence been on the mass produced consumer marketplace. A single channel yagi antenna is easier to mis-design than most any other antenna known. It is more critical, and more dependent upon good design practice than an LPV. Anytime you hear someone say that they tried brand 'X' single channel yagi, and found its performance no better (or worse) than an LPV or all band yagi antenna, you must assume that the so-called single channel yagi was mis-represented to the buyer for something that it was not and could not be.

The best place to start looking for a single channel yagi line is not in the consumer antenna catalog. Look in the MATV (master antenna television) antenna catalogs. MATV antennas are a cross between CATV yagis (which often cost up to \$3000. per channel) and the consumer mass produced antennas. The MATV lines usually include single channel yagis that are electrically 90 % as good as their CATV counterparts. They differ, in the main, in mechanical ruggedness with their CATV counterparts - CATV antennas being designed for heavy ice and wind loading with strength rivaling a Sherman Tank! This latter feature is what raises the cost of CATV antennas so astronomically.

You can expect to pay around \$25.

for a good MATV quality low band 5 element yagi. The high band versions, 5 element, run to around \$15.00. The ten element models will cost \$40.00 for low band, \$25.00 for high band.

We also have available so-called 'low band yagis' and 'high band yagis'. These are antennas supposedly designed so that the low band version covers channels 2-6 while the high band version covers 7-13. These are also compromise antennas. The low band models are usually peaked for channel four, which means they work well on four, about 90% as well on 3, and 75% as well on channel 2. On channel 5 they are 65% as effective and only 50% as effective on channel 6. (A yagi antenna works reasonably well on the next lower channel but miserably on the next higher channel) The same figures apply on high band except the design center is usually channel 10.

These antennas work better on 3,4,9,10 than any all-channel yagi (ie. they have more gain), about as well as an all-channel yagi on channels 2,7,8, and not as well as on channels 5,6,11,12 and 13.

### Stacking Antennas

When you stack two identical antennas (never stack two non-identical antennas) you are optimizing the system for additional gain. You can, in theory, double the voltage gain of an antenna by stacking two identical antennas together. When you double the voltage gain, you add 3 db gain to the overall antenna system. Thus a single antenna, with 6 db gain, will give you 9 db (6 plus 3) when you stack two together. That is theory. In practice you usually gain from 2 to 2.5 db additional by stacking a second antenna.

You stack or connect the two identical antennas together using a stacking or phasing line. This is

usually a set of wires or aluminum bars that connect the antenna terminals of one antenna to the antenna terminals of the second antenna. Then your feedline (download) connects to the phasing or stacking bars at the mid-way point, where the impedance of the two antennas stacked together matches the impedance of the feedline. The antennas must be the proper physical distance apart, and the length of the stacking lines must be electrically correct, or you will have miserable results.

The proper physical distance and the proper electrical length of the stacking lines varies from channel to channel, since both are a function of wavelength - which differs with each channel. So if you stack a set of all-band yagis together at the proper distance for channel 4, and use channel four length for the stacking lines, you will have optimum performance from your all-band system on channel 4, improved performance on channels 3 and 2, but probably reduced performance on most if not all of the remaining channels. The same stacking situation affects the LPV antenna, although it may not be as drastic a reduction on the higher channels.

So - if you stack two all band yagis the proper distance and line length for channel 4, you will have improved performance only on 4, and marginal improvement on 3 and 2. The rest will suffer.

If you stack two 10 element channel four antennas with the proper channel 4 phasing lines, the proper distance apart, you will have the best channel 4 DXing antenna that most of us could afford. But you will have a lousy channel 5,6 (etc) antenna and only a fair channel 2 and 3 antenna.

### UHF Antennas

There is only one good UHF antenna design on the market. The para-

parabolic (dish) antenna. The UHF LPV series are like their VHF counterparts - except their lack of adequate gain (at UHF) is an undeniable sin. You need all of the system gain you can squeeze out at UHF, to make up for the totally inadequate receivers, and the antenna is the best (and cheapest) place to get that gain. The UHF yagi antennas are in theory fine, but in practice they are mass produced in quantities with little or no attention given to the necessary close manufacturing tolerances required, so they seldom work well. With an UHF yagi, you can usually take half of the directors from the boom and not degrade the performance of the antenna. This makes one wonder why they were included in the first place unless it was to impress the customer and/or the installer!

The plain (yagi) facts are that at UHF antenna tolerances are very close. 1/16th of an inch in error, in element length, element to element spacing or design of the feed element is enough to substantially degrade the antenna's performance. When you have 'swing' or 'snap' out elements, that the customer snaps into place before erecting the antenna, 1/16th of an inch error is not only possible but probable. And since each error adds to each other error, the results can be a disaster. On top of this remember that the yagi is a narrow band (single channel) antenna - and that even at UHF a Channel 40 antenna will not work well at channel 47, although it may work fairly well at channel 36.

If you want the best UHF antenna - and there is no excuse not to have it - get a 'dish' or parabolic.

I recommend the Allied Radio 5 and 7 foot diameter parabolic antennas. These are moderately priced (the 7 foot is \$27.95 and the 5 foot is \$16.95) and appear in the 1969 Allied catalog on page 400

(upper left hand corner of page). Their 7 foot (they say) has 17 db gain on channel 14 and 21 db gain on channel 83. Right below the parabolics, on page 400, is something they call the ZIG-A-LOG. This little dandy, they claim, has 16-17 db.

In the summer of 1968 I purchased one each of the 7 foot parabolics and the Zig-A-Log. I set up an antenna test measurement range in central California and using a CATV type field strength meter, continuous chart recorder (to give 12 inches per hour of written records of the actual signal received), and pure test measurement procedures, proceeded to compare the two antennas over a two week period. The 7 foot parabolic exhibited 5 db more gain at channel 24 and 7 db more gain at channel 47 than the ZIG-A-LOG. I then checked the 7 foot dish against a suitable reference (test) dipole and found that in my situation the 7 foot dish showed 15 more gain than a dipole at channel 24, 16 db more gain at channel 47.

Anyone who doesn't have at least a 5 foot parabolic up for UHF DXing is just not serious about UHF.

### Transmission (Feed) Lines

The controversy over which type of feedline to use, between antenna and receiver, has just about burned out. I happen to favor coax in most situations. I like coax because it is easy to work with, is not affected one-whit by foul weather, and will outlast any 300 ohm line ever built. Coaxial cable is not affected by ignition noise from cars, trucks, power lines and other man-made contrivances the same way that tubular 300 ohm line is. However, the same claim can be made for the newer shielded 300 ohm twin line also.

Coaxial cable (RG-59/U - 72 ohm type) for runs of 50 feet or less

at VHF; RG-11/U (72 ohm type) for runs of 100 feet or less (at VHF) is only slightly more expensive than 300 ohm tubular foam filled twin lead. And it gets alot cheaper than tubular twin lead when you figure the tubular line should be replaced every two to four years, and the coax every ten.

72 ohm coax has other advantages. All of the traps (see section one of this series) and most of the useable boosters, amplifiers, etc. (which will be discussed in section three) have 72 ohm input and output connections. Thus if you have 72 ohms from antenna to receiver (ie. coax), you are ready to plug in all of the extra add-on DXing accessories we talk about here.

Primary dis-advantages of coax are as follows:

- (1) You don't know how to put on connectors. That's no big deal, any TV man or ham can show you how. RG-59/U uses special crimp-on (no soldering) 'F' fittings. A pocket knife and a pair of pliers and you are home free. RG-11/U uses PL-259 solder on connectors. So your fear of connectors should not stop you.
- (2) Coax has more loss than twin lead. No disputing this. 100 feet of foam filled twin lead has about the same loss at channel 13 as does 30 feet of RG-59/U (losses in transmission lines decrease as you go down in frequency). For 50 feet runs or less, without an antenna amplifier, use RG-59/U, or for runs of 100 feet or less with an antenna amplifier. For runs of 50-100 feet without an amplifier, use RG-11/U, or for runs up to 200 feet with an antenna amplifier. Never use coax at UHF unless you use a proper UHF antenna amplifier to make up for losses.

For non-amplified UHF antennas, use the best foam filled UHF twin lead you can find - Belden 8275 is good.

One nice thing about losing signal (voltage) in coaxial cables - you can amplify it back up at the set with a set mounted amplifier, or you can compensate for it to begin with, with an antenna mounted amplifier.

We'll have more to say about this in our third section, next month.

-----  
NEXT MONTH - this four part series will continue with a full treatment of amplifiers for DXing.  
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The publishers would also like to call your attention to the series of articles on transmission lines that has been appearing in the VUD these past few months. The final installment is in this issue. For newer members who wish back issues to complete the five part series, a limited number of copies are still available of #10-11, 13-14 in which the first 4 parts appeared. In addition a two part series on wave traps for eliminating QRM from other TV stations ran in issues #8-9 and these are also available. As a service to members, the complete set of 6 is available for only \$1.25 while they last (regular price \$1.80). 1 or 2 copies are 30¢ each, 3 or more, 25¢ each. #9 especially is in short supply, so hurry!

If you missed the first of this 4 part 'Ultimate' series by Bob Cooper, you may request #14 in this package deal. If ordering with the complete set of 6, you may have #14 for only 15¢ more. Otherwise, the preceding rates apply: 1-2 30¢ each, 3-6 25¢ each, 7 or more 20¢ each (all sent to the QTH).

# PROPAGATION . . . L-S DX

We will now look at the propagation mode which has been given the name Lightning Scatter.

This phenomenon has been studied and reported in various articles starting in the 1950's. QST's VHF-up column, "The World Above 50 Mc.," October 1954, noted its discovery a few years before, with several reports this season, also mentioning a British magazine's report of TV observations. An amateur radio operator in Rensselaer, Indiana heard a Shiloh, Ohio ham 2 August 1954 at 240 miles. Strengths averaged S3 but flashed to S8-9, 30-36 db increase, resembling meteor bursts but with stronger peaks. Analysis of other reports indicated its range as about 100-300 miles as compared to meteor-scatter range of 400-1100 miles. No frequencies were mentioned; 6 or 2 meters (50 or 144 MHz) is assumed.

The British periodical Nature, 28 May 1955, noted VHF-UHF thunderstorm signals on equipment monitoring signals at 200 mi. on 49, 91, 173 and 492 MHz using 5-element yagis (12-ft parabolic on 492) on receiving end, all horizontal polarization. Thunderstorm in region of receivers on 26 June 1954 brought normally slowly fading signals up to a series of rapid impulses. This may have been the first wide-spectrum observation.

Two items of Correspondence appeared in IRE Proceedings. December 1957 issue reported analysis by two Midwest scientists of 400-mile 915-MHz transmissions with lightning-caused bursts up to 20-30 db above median level, when storm was at midpoint of path. Evidence pointed to forward-scatter-type ionized areas caused by cloud-to-cloud discharges. TV enthusiast C. R. Graf reported in May 1958 issue of his radio reception of ch. 2 video and audio signals (55.25 & 59.75 MHz) in San Antonio, Tex from KPRC-TV Houston and KMID-TV Midland, 200 and 300 miles, using a 4-element 50-MHz yagi. Nearby flashes greatly increased signal for duration of flash, with more but weaker bursts at more distant storms. Most lasted less than a second but some were for many seconds.

From the resources of our memory is a report in the AIPA bulletin around 1960 from Charles Wood of Ashland, Oregon, who discussed lightning flashes causing increases of Portland VHF-TV stations, over 200 mi. as is recalled. Lightning-induced scatter observation would be infrequent in these Western areas; there is much more electrical weather further east.

Roderick Lu of Detroit reported in the Eastern DX column of our VUD, August 1968, of his reception of WFLD-32 Chicago (578-584 MHz) about 250 mi. on eve of 23 June 1968, during a severe electrical storm to the west. WFLD popped in for about a second during lightning strokes, apparently due to ionization of the air around the charge. There was no signal between strokes. He notes that VHF was also affected as usual.

QST's "World Above 50 Mc." of November 1968 (also noted in Dec '68 VUD EDX) reported the first amateur lightning scatter contact on 432 MHz, on 16 September 1968 between hams in Mississippi and Kansas. The stations directed their antennas at an intense thunderstorm over adjoining borders of Arkansas, Texas, and Oklahoma. The Kansas ham said that some bursts lasted 25 seconds, up to 40 db above the noise level. Without knowing locations, the distance may have been around 500 miles.

Much study remains to be done on this subject, but at present, it appears to affect VHF and UHF signals, with the possibility of stronger levels on UHF than on VHF. A storm may be anywhere between transmitter and receiver, not necessarily at midpoint or in true direction. You can provide further knowledge in this area as well as giving yourself some interesting DX by checking the bands in the VHF-UHF spectrum—not only television but FM broadcast and other ham and communication bands—whenever electrical storm activity is evident in your region. However, appropriate caution is urged if a storm is in your immediate area, as your antenna makes a pretty effective lightning rod.

Dennis Smith

PART V: ALL ABOUT TRANSMISSION LINES

INSTALLATION

Merely choosing the ideal T-line for your particular case will not guarantee best performance. The line must be installed correctly.

Shielded T-line allows a "sloppy" installation. The line can lie on or near metal, or it can be routed broadside to a power generating device with no effect. The only rule is to make line length as short as possible due to the higher loss per foot.

Installation of other types of line is more critical. This last article will outline basic rules that govern conventional installations: 300 ohm line to 300 ohm devices. No attempt is made to describe the use of various coax connectors, baluns, or correct methods of grounding the line.

Three basic rules for conventional 300 ohm lines must be followed: (a) keep it short, (b) avoid horizontal runs, and (c) keep it away from both insulating and noninsulating surfaces. Note that most of the rules below are extensions of the three basic rules.

1) Plan the best route before purchase, using the rules noted below. T-lines usually come in discrete lengths (50, 100, 250 ft.), so planning beforehand to determine the approximate length can save money. Usually, choose the most direct route, considering antenna height, best entry into house, location (present or future) of receiver, etc. However, avoid long horizontal runs that place the line broadside to strong local transmitters or near (within five feet) a-c power lines, even if doing so increases line length.

2) Attach line tightly to antenna or preamp terminals. Preferably, crimp or solder a closed eyehook connector to each conductor; this will simplify installation and strengthen the connections. Or, twist strands together, tin with a soldering iron, and form a loop to simplify attachment.

3) When attaching T-lines other than the flat type to no-strip terminals with serrated washers that are supposed to pierce the insulation, exercise special care. Since it is almost impossible to pierce the insulation enough to make good contact with the conductor, either (1) cut off enough conductor from the end of the line to form a thin section resembling flat line, and insert and tighten under the no-strip washers or (2) discard the serrated washers and attach as in rule 2 above.

4) If a strain relief is not supplied on the antenna boom, mount a mast stand-off near the terminals. Always use the longest mast or roof standoffs available; those with the insulating eyelet that are best. (The other type -- with metal loop that surrounds the line -- can attenuate signals.) Most standoffs accept all types of T-line.

5) If tubular hollow line (no longer popular) is used, insert a plug into the end to prevent moisture from entering.

6) Use mast standoffs only as often as necessary to prevent contact with guy wires, mast, boom, etc. Do not force T-line so hard into the eyelet that the conductor spacing (and impedance) is altered. Conversely, if T-line fits loosely through eyelet, wrap a few turns of waterproof tape around T-line on both sides of the standoff to prevent slippage.

- 7) Twist T-line about one turn for every five foot length to reduce electro-magnetic pickup. But be careful that open wire doesn't "flip" over and short out!
- 8) On multi-antenna masts (not recommended for DXing, but usually a necessity because of economics) use waterproof tape to hold T-line from upper antenna several inches away from the elements on the lower antenna. Arrange mast standoffs  $180^\circ$  from each other to reduce coupling.
- 9) Allow enough loop or slack for rotation. Usually, the rotor control and antenna are pointed south initially so that an equal minimum of slack allows rotation in either direction.
- 10) Keep T-line as far as possible from rotor cable. Dual standoffs allow about five inch separation.
- 11) Avoid T-line bends greater than  $90^\circ$  between antenna and receiver.
- 12) Use roof standoffs sparingly, but keep T-line away from gutters, flashing, etc. Make sure T-line cannot pull through eyelet and touch metal by taping as in rule 6. Screw roof standoffs in far enough for strength. (Tar can always be used to prevent a leaky roof.) Roof standoffs that just pierce the shingle may bend due to strong wind and/or iced T-line.
- 13) Form rain loop and ground suitably where T-line enters house.
- 14) Insulating tubes (Allied, page 408, Burstein Applebee, page 187, Lafayette, p. 355) fit into a drilled hole in the wall and make installation neat appearing but -- more functionally -- prevent contact with metal inside wall structure.
- 15) Use only enough T-line to reach receiver. If slack must be left for moving receiver, never coil excess wire behind set.
- 16) If several antennas are used for DXing such as indoor or remote dipoles for E'skip, use closepin type clips for rapid removal.

Check your T-line periodically after installation for trouble signs. Contaminants in the air, strong winds, or squirrels with unusual appetites can ruin a T-line. Reception that "just doesn't seem like it used to be" is often traced to cracked, open, or poorly insulated T-lines.

END OF SERIES

The ANARC Man of the Year committee, now in its second year of existence will soon be conducting the 1969 selection of the ANARC MOY. The committee requests ANARC Club Members to Participate in the nomination of candidates for the award. The committeemen make the final selection on each individual's merits and Dx'ing activities, But they do meet nominations. The Man of the year committee asks ALL club members to make an effort to nominate someone they think is worthy of the award. The person we are searching for should be active as a DX'ER, a club supporter, and a believer in ANARC'S goals. Please send your nominations to MOY, 311 West 14 St., Riviera Beach, FL, 33404.

## How to Evaluate and Purchase DX Equipment

Although soured a bit by the usually poorer DX conditions in winter, the average TV/FM DXer looks forward to the improved spring and summer DX season with great enthusiasm. And -- especially if he has saved a little scratch -- the winter is usually the time for thinking about, or purchasing, a new antenna, receiver, or preamp. But without specs for that product, or knowledge of how that product compares with others, he may waste his money on equipment that doesn't improve his set up.

To help him decide, the DXer may investigate one or more of five (5) sources: (1) other DXers, (2) local TV sales/service shops or distributors, (3) past magazines containing product review, (4) electronic warehouse catalogs, and (5) manufacturer's specifications and sales literature. Let's look closer at each of these.

Other DXers can be a good source of information, especially if they are technically competent or -- better yet -- have actually compared similar equipment. Even if a knowledgeable DXer is asked, but knows little, about a certain product, he might point out qualities pertinent to that class of products. For example, he might warn of the overload and cross-modulation effects of transistorized preamps. Or he might warn of the uneven gain and impedance mismatch of loaded director type of all channel yagis (Winegard CL4X, etc.). By all means, always ask knowledgeable DXers for advice.

But, since all of us are mildly prejudiced on some subjects (prejudice is really a belief in your own ideas with little or no knowledge of a given subject), advice of others must never be accepted without investigation. I have a friend that has never bought anything but Fords -- they were the best in the '30's, he claims, so he will buy Fords until the day he dies! Also, a friend has questioned my evaluation of TV sets: "How can you knock Muntz and De Forrest sets," he asks, "my grandmother bought a Muntz radio in 1940 that didn't need service for 20 years." And so it goes. So weigh the advice from others carefully and, when asked for advice, give it honestly. Don't stick up for a product just because you bought it.

Local TV sales/service shops usually sell products of one or two manufacturers only. Since they cannot (or don't care to) test each product side by side to determine the best, their products (in their prejudiced opinion) are the best. Some shops are exclusive sales outlets for large manufacturers and sell their products only.

However, the local shop should have detailed specifications on its products. This might save you the time and effort of writing to the manufacturer. Or, the shop can give you a demonstration (but this doesn't help much when buying an antenna). Sometimes -- but not often -- a local shop will sell cheaper than the electronic warehouse plus shipping price. Also, if you can try a product on a trial basis, fine, but don't hold your breath. In larger cities, some distributors sell at the discount catalog price, and you save shipping charges.

Magazines that carry product reviews depend heavily on advertisements for revenue. The policy of "don't bite the hand that feeds you" generally prevails. About five years ago, I had access to most electronic magazines and was able to form opinions on how honest they were in their evaluations. The "cheaper" magazines such as Popular Electronics, Electronics Illustrated, etc. almost never criticized a product. Others criticized more often, but only mildly. The product review in Radio Electronics today usually is more critical.

Magazines that evaluate products only and do not accept advertisements (Consumer Reports, Consumer Bulletin) seem impartial. The leader -- Consumer Reports -- is, in my opinion, an excellent publication: well written, edited, and very honest.

Catalogs from electronic warehouses such as Allied, Berstein-Applebee, Lafayette, Radio Shack, etc. can be valuable. Prices are usually lower than local prices, and almost all name brand manufacturers sell through one or more warehouses. However, a DXer that uses these catalogs and the wild claims in them as the only basis when choosing equipment will soon be wiser, but poorer. For example, if a DXer with limited technical knowledge and \$40 to spend for a new VHF TV antenna uses Berstein-Applebee only, he notes on

page 181 that the Finney 7A6533 all channel yagi at \$37.77 claims reception to 100 miles on VHF and UHF and 60 miles on FM. But the Winegard SC-1000 jewel, model 7A6507 at \$39.95, claims 175 miles VHF, 125 FM, and 80 UHF. So buy the SC-1000 -- and lots of luck! The biggest SC-1000 claims 325 mile reception on VHF. Anyone with a dab of antenna knowledge knows that this is just BS. Never use mileage claims in catalogs for comparison of antennas.

Every DXer, however, should obtain catalogs from all popular warehouses for price comparison. New catalogs are issued about August of each year; supplement or sale catalogs are common throughout the year. Usually prices for identical equipment are the same or close. (There are exceptions; the Blonder Tongue Dart UHF antenna is \$3.49 in Allied and \$4.15 in Lafayette.) Select the lowest cost with shipping charges considered.

Policies on sending catalogs vary. Often catalogs will be sent for a year only unless an item is purchased within that time.

A letter to the manufacturer for sales literature and specifications is a must before purchasing equipment. Get on the manufacturers mailing list so that you'll be aware of new products. (You maybe surprised at the complete line of equipment some manufacturers have.) But pamphlets containing bushwa may be all you get. Ask politely for complete specifications in addition to, or in place of, sales literature. For antennas, ask for the gain, front/back ratio, and impedance on each channel. Do not accept "high-gain", "excellent match", etc. Often, the actual gain noted on spec sheets is quite less than that advertised in their sales literature.

You'll be surprised how much help you may receive and how frank the company may be. While I have been discouraged by the sales blurbs of some antenna manufacturers, they have been very cooperative when specific data is requested. For example, Finco sent me complete data when I requested info on the Fro-Back Screen, an option for the popular double-collateral TV antenna in the '50's. While the screen helped F/B ratio on all channels, it reduced gain on ch. 2-6, as the data showed and the Finco rep. pointed out. He advised against this screen because of ch. 2 & 5 fringe reception from Chicago. (He didn't know I was a DXer.) And Winegard was most courteous when I returned their low-band yagi and pointed out that element length could not possibly be correct for that band. This was a "new design" said the Winegard rep., and he was most happy to hear an early "field report". (I haven't seen this antenna in Winegard's "bag" lately!) Money was refunded.

One word of caution: Show the manufacturer that you are knowledgeable; avoid questions such as "How far our will I get with this antenna?" And if you have a gripe about construction or instructions after purchase, let the manufacturer know courteously that you don't care to spend good money, for example, for an antenna that corrodes rapidly or is difficult to assemble.

In conclusion, seek advice and opinions from DXers, local shops, magazine reviews, but weigh them carefully. Get the best price from local shops and catalogs; and by all means request complete specs. If you cannot interpret specs, send for them anyway and let others interpret them. All this boils down to simply learning as much as you can about a product and shopping around. (When shopping locally for those products that may need repairs, such as receivers and preamps, check warranty policies and the dealers reputation.)

Of course, in addition to the list of five sources just described, the chief source should be experience and text book knowledge. With this, it is easy to evaluate some specs or designs and laugh at the ridiculous claims. However, most DXers don't have this knowledge at first and possibly never acquire it. But there's nothing that speeds the interest in a subject then swallowing some of these wild claims and buying a "pig in a poke".

If all this seems like too much bother, lots of luck; just flip a coin and buy on that basis, but don't cry when your results are unsatisfactory.

# "DX DOWN UNDER"

by 'European Scene' editor Roger Bunney

Although this is rather a long distance from Europe, I will include details of the Australian television scene, as information has come to hand, relating to this part of the world. Since we are concerned with the lower part of the spectrum for such distances, I will only detail those transmitters on Australian channels 0, 1 and 2, the frequencies of which are:

ch. 0	46.25 MHz	vision	51.75 MHz	sound
ch. 1	57.25 MHz	"	62.75 MHz	"
ch. 2	64.25 MHz	"	69.75 MHz	"

Negative-going video is used, at 625 lines with a 50 Hz frame speed. Audio is FM. All the transmitters are high powered, with 100kw video and 20 kw audio.

I will list the transmitters by channel, and unless stated to the contrary, the signal polarization is horizontal. Government stations begin with 'AB', the other transmitters are commercial. The following abbreviations indicate the state in which the station operates:

NSW- New South Wales      WA- west Australia      SA- South Australia  
 Q - Queensland            V- Victoria                    T- Tasmania

## Channel 0

wagga wagga, NSW - ABMN      Brisbane, Q      TVQO  
 Nunawading, V      ATVO

## Channel 1

Bendigo, V      ABEV (vert)      Mt. Gambier, SA      ABGS  
 Orange, NSW      ABCN (vert)      Taree, NSW . . . . . ABTN (vert)  
 Port Pirie, SA      ABNS (vert)      Warwick, Q. . . . . ABSQ  
 Albury, V      ABAV

## Channel 2

Grafton-Kempsey, NSW - ABDN      Melbourne, V      ABV  
 Swan Hill, V      ABSV (vert)      Brisbane, Q      ABQ  
 \*Broken Hill, NSW-ABLN (vert)      Adelaide, SA      ABS  
 \*Broken Hill, NSW-BKN pol.??      Perth, WA      ABW  
 Albany, WA      ABAW (vert)      Hobart, T      ABT  
 Sydney, NSW      ABN      Eastern Riverina, NSW-RVN

The above lists were compiled from the WRTVH and the EBU lists.

\* NOTE-In the EBU lists, 2 transmitters are listed on the same channel in Broken Hill.

Programmes resemble the American pattern, with a considerable amount of film. On the commercial stations there are many breaks for commercials. Recently, copies of the Melbourne TV guide have come to hand, and details of the programme times are as follows. These are for ATVO, ch. 0 (commercial) and ABV ch. 2 (government). All Melbourne time.

	Ch. 0	Ch. 2			
Sunday	1200-2345	1020-2215	Thursday	1000-2355	0910-2300
Monday	1000-2345	0910-2215	Friday	1000-2400	0910-2325
Tuesday	1000-2350	0910-2340	Saturday	0800-0005	1200-2400
wednesday	" - "	0910-2330			

Stations ABEV-1, ABRV-3, ABLV-4, ABAV-1, ABSV-2 and ABMV-4 carry the same programmes as channel 2.

No details of test transmissions are available, but it is assumed that these start around 0900. Some commercial stations in the country start programmes near the end of the afternoon. Presumably the test card is radiated earlier in the day. No photographs of the test card are to hand, but 'How to Improve Your TV Reception' shows the test card of ABQ, ch. 2 in Brisbane. we assume that this card is similar to that of the other government stations.

# FM CHANNEL NUMBERS

Listed here for the convenience of FM DXers is a complete list of FM channel numbers, frequency numbers, and the channel classification. This list will assist the DXer in knowing the channel number (which is often used in technical reports in lieu of frequency numbers) and also the classification of the channel which determines the range of the stations on a frequency (regional, local, etc.)

Freq.	Channel #	Class	Freq.	Channel #	Class
88.1 mc.	201	educational	98.1 mc.	251	class B-C
88.3	202	educational	98.3	252	class A
88.5	203	educational	98.5	253	class B-C
88.7	204	educational	98.7	254	class B-C
88.9	205	educational	98.9	255	class B-C
89.1	206	educational	99.1	256	class B-C
89.3	207	educational	99.3	257	class A
89.5	208	educational	99.5	258	class B-C
89.7	209	educational	99.7	259	class B-C
89.9	210	educational	99.9	260	class B-C
90.1	211	educational	100.1	261	class A
90.3	212	educational	100.3	262	class B-C
90.5	213	educational	100.5	263	class B-C
90.7	214	educational	100.7	264	class B-C
90.9	215	educational	100.9	265	class A
91.1	216	educational	101.1	266	class B-C
91.3	217	educational	101.3	267	class B-C
91.5	218	educational	101.5	268	class B-C
91.7	219	educational	101.7	269	class A
91.9	220	educational	101.9	270	class B-C
92.1	221	class A	102.1	271	class B-C
92.3	222	class B	102.3	272	class A
92.5	223	class B-C	102.5	273	class B-C
92.7	224	class A	102.7	274	class B-C
92.9	225	class B-C	102.9	275	class B-C
93.1	226	class B-C	103.1	276	class A
93.3	227	class B-C	103.3	277	class B-C
93.5	228	class A	103.5	278	class B-C
93.7	229	class B-C	103.7	279	class B-C
93.9	230	class B-C	103.9	280	class A
94.1	231	class B-C	104.1	281	class B-C
94.3	232	class A	104.3	282	class B
94.5	233	class B	104.5	283	class B-C
94.7	234	class B-C	104.7	284	class B-C
94.9	235	class B-C	104.9	285	class B-C
95.1	236	class B-C	105.1	286	class A
95.3	237	class A	105.3	287	class B-C
95.5	238	class B-C	105.5	288	class B-C
95.7	239	class B-C	105.7	289	class A
95.9	240	class A	105.9	290	class B-C
96.1	241	class B-C	106.1	291	class B-C
96.3	242	class B-C	106.3	292	class B-C
96.5	243	class B-C	106.5	293	class A
96.7	244	class A	106.7	294	class B-C
96.9	245	class B-C	106.9	295	class B-C
97.1	246	class B-C	107.1	296	class B-C
97.3	247	class B-C	107.3	297	class A
97.5	248	class B-C	107.5	298	class B-C
97.7	249	class A	107.7	299	class B-C
97.9	250	class B-C	107.9	300	class B-C

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\* MHF-UHF DIGEST FEATURE SECTION \*  
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\*Editor: Gary Olson\*  
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For the benefit of the many TV and FM DXers who would like to venture into the past and do some reading in old magazines we are pleased to present a compendium of articles written on the subject.

Those who wish to obtain copies of these articles for their personal files should contact the New York Public Library or some similar body to arrange for the copying and purchase of the listed articles.

This list is by no means complete. Additions and corrections would be appreciated and should be sent to Gary Olson at headquarters.

Many thanks to Dennis Smith for the bulk of the work in compiling this information.

Radio-Electronics (formerly Radio-Craft)

Mentions of VHF propagation -- skip and tropo -- in Trans-Atlantic News column:

August 1946, September 1946, March 1947, February 1948, May 1948

Mentions of FM and TV F2 skip in Monthly Review section:  
September 1947, February 1948, May 1948

FM DX and US FM Station Lists of the first FM boom:  
April, June, September, December 1948;  
April 1949

US North America TV Station Lists:  
January 1948; March, November 1949; January 1950;  
January 1951; January 1954; January 1955, January 1957; January 1958

Latin-American TV Station Lists:  
February 1954; August 1957

Mentions of TV DX in the Radio Month Section:  
September 1949; October 1954

Special Articles pertaining to TV DX:

January 1949 "How to Get Television DX"

May 1951 "What's the Mystery behind Television DX"

March 1952 "Beyond the Fringes"

April 1953 (poem) "TV"

April 1953 "DX Prospects for UHF TV"

May 1953 "High Gain Rhombic for TV"

June 1953 (poem) "TV-DXer"

June 1953 "The Effect of Sporadic E on TV Reception"

May 1955 "The Planets and TV DX"

May 1955 "New Departure in TV Antennas"

April 1956 "Sunspots and Communications"

January 1957 "Tall Tower Techniques - I"

February 1957 "Tall Tower Techniques - II"

March 1957 "Target for DXers (Australia TV)"

May 1957 "Rhomboids for TV Reception"

July 1957 "Transoceanic TV DX"

August 1957 "TV and Sunspots"

November 1957 "Tips from a TV-DXer's Notebook"

September 1958 "Looking in on London"

December 1959 "Photographing TV DX"

Regular TV DX Column (special yearly resumes underlined-  
Note FM DX included starting September 1958)

1949 - November, December

1950 - January, February, March, April, June, September, October, November, December

1951 - January, February, June, July, August, September, October, November, December

1952 - January, February, April, May, June, July, August, September, October, November, December

J  
V  
E  
M  
D  
X  
B  
C  
L  
S

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\* VHF-UHF DIGEST FEATURE SECTION \*

\* continued \*

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- 1953 - January, February, April, May, June, July, September, December
- 1954 - January, February, March, April, July, October
- 1955 - January, February, April, July, October
- 1956 - January, July, August, October, December
- 1957 - January, March, May, July, September, November
- 1958 - January, March, June, July, September, November
- 1959 - January, March, May, July, September, December
- 1960 - January, February

DXing Horizons/Television Horizons

Various articles on TV and FM DX including separate TV and FM reporting columns January to December 1960. Combined TV and FM DX columns January to August 1961.

Radio & Television News/ Radio & TV News (now Electronics World)

- December 1952 "DX Television"
- December 1951 "Bringing TV to Panther Valley"
- January 1954 - Television Station List
- March 1955 - Television Station List
- June 1957 "Operation Smokepuff"
- August 1957 "Fringe-Area FM Reception"
- August 1957 "Sunspots Mar TV Reception"
- February 1958 "Rhombic Antennas for TV"

Popular Science

- July 1952 - "Kansas TV Fan Gets Both Coasts"

Popular Electronics

- June 1956 "DX TV Reception Makes New Hobby"
- January 1958 "International Television DXing"
- April 1959 "DXing with your TV set"
- June 1960 "DXing on TV"
- July 1966 "Riding the TV DX Trail"

Popular Mechanics

- November 1959 "DX - Station Report Verifications"

S-9

- July 1967 "TV DX"

Electronics Illustrated

- August 1959 "TV Over the Horizon"
- November 1961 "Europes Top TV DXer"

CQ

- April 1959 "Transatlantic Video DX"

QST

- November 1958 "Sporadic E-Skip on 200 mc.?"

TV Guide

- January 22-28, 1955 - "Why Freak Reception"
- July 23-29, 1955 - "Hey Ump, Throw the Bull Out"
- November 10-16, 1956 - "The DX Bug"
- July 11-17, 1959 - "The Strange Language of the Television DXers"

Although there have apparently been no books written on the topic of television and FM DX there are apparently a goodly number of research reports and similar materials available. Much work is still being done in this area but this information is quite difficult to find and is not usually cataloged in the library.

Two publications of use are:

- "Worldwide Occurrence of Sporadic-E" U.S. Dept. of commerce - National Bureau of Standards, Circular 582 (quite detailed but has a good chapter on TV DX) available from the US Gov't. Printing Office, Div. of Public Documents, Wash.D.C.20402(\$3.25)
- and "Ionospheric Sporadic-E" by Smith and S. Matsushita (1962) available from Pergamon Press Inc., 122 East 55th St., N.Y., NY for \$15.50 (extremely technical and complicated!)

"Neither rain, nor sleet, nor snow..." goes that timeless old saying which all of you have probably heard a countless number of times. The point is, however, that no matter what happens the mail must get to the people.

In the case of WTFDA the mail must also go through. However, in this day and age our obstacles are not the elements. Financial problems are on everyone's mind in the world of today -- and our club is no exception. Our organization, just like every individual and group today, is a victim of inflation.

A meeting of the minds at WTFDA headquarters has shown that making ends meet in the future will become more difficult. Despite steadily growing membership it is still a battle to keep ahead on the financial statements. The growing size of our VHF-UHF Digest (48 pages this month) means we need more ink, more paper, more stencils and other supplies. A heavier bulletin also means increased postage to bring it to you - the member. Governmental rumors indicate that more postage increases may be just over the horizon which again means added expenditures. Inflation is perhaps the most significant contributor to the problem as the prices of paper, ink, and stencils continue to go up and up.

With all this in mind a raise in club membership dues will be essential to keep up with growing costs. In order to keep the ever-growing bulletin quality high and continue to make improvements it is the opinion of your publishing staff members that a raise in annual dues will be necessary.

If you are puzzled as to the need for the increase do a little arithmetic; a little research will provide the answers. You are receiving each page of VUD for well under \$.01 per page of reading material (and that includes the cost of publishing, supplies, equipment wear and tear, postage, etc.) which is far from extravagant when you consider the final product and the amount of work put into it.

In order to achieve our goals an increase will become effective June 1, 1969. All renewals or new memberships received through May 31, 1969 will be accepted at the old rate. Therefore for those whose memberships will shortly be expiring it would be advisable to renew soon in order to save yourself a few cents.

The new rates will be:

\$4.50 -- 1 year (in United States, Canada,  
\$8.50 -- 2 years Mexico, and U.S.  
\$12.00-- 3 years territories)

Those desiring first class postage mail service to anywhere in the United States, Canada, Mexico, and U.S. territories should add \$2/year to the cost of membership.

Foreign members will have a choice of services:

- (1) a special overseas edition (which will not include many of the columns of interest to only North American DXers) at an annual rate of \$3.50
- (2) or the regular edition which contains all the regular columns at a new rate of \$5.00 per year

We at headquarters very much regret the necessity for the increase in annual dues. However, it is essential so that we may continue to deliver your bigger and better bulletins on time all the time. We have high hopes for an even greater future; the additional few cents from each member will be put to work in the best way possible.

Your WTFDA Publishers: Ferdie, Gary, Morrie, John, Dave, Bill+Ed.

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