

From The Staff:

WTFDA Headquarters, P.O. Box 97, Cambridge City, IL 60006

MORE F2 SKIP DX ON U.S. CHANNEL 21... On not one but three days in February, the maximum usable frequency (MUF) of F2 skip paths from North America to South America rose high enough to allow TV DX by that rare and exotic mode. The events are detailed in another one of Texas DXer's Boyer's special reports on page 46 of this issue. Even in the late part of Sunspot Cycle 21, surprises continue. You may even have word of transequatorial scatter (TB) over the Pacific in an upcoming issue!

NEW PHOTO EDITOR... The new photo editor of the VUD DIGEST is Mike Reid, 109 Arjay Crescent, North York, Ontario M2L 1C6, CANADA. A new and expanded version of the VUD's popular PHOTO NEWS section will be returning shortly. We'd like to have your black-and-white photos of TV DX, your antenna and equipment set-up, in the VUD. Send your snapshots to Mike at the above address. A new phase of PHOTO NEWS will concern itself with test patterns of all kinds. Watch for the new PHOTO NEWS section in upcoming issues.

SUPER HOMEMADE UHF TV PREAMP PROJECT... TV DXers like to build their own signal preamplifiers should get a copy of the March Radio-Electronics magazine. This issue features a construction project that can greatly improve your UHF TV DX performance. For just \$35.00 in parts, the author's circuit is said to exceed most commercially available UHF TV preamp results. The heart of the project is a couple of microwave transistors that offer very low noise versus high gain parameters.

END OF WINTER SPECIAL... This issue features an increased amount of technical material, to help you get over the winter DX blahs. This month's article on meteor scatter is the second in-depth piece by the TV editor Bill Fabber. If you didn't catch the first one, it appeared in the April 1981 VUD issue. Coming soon in the VUD for you meteor scatter enthusiasts will be a regular column devoted to this challenging DX mode.

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MAILBOX

John Zondlo
1308 SW 74th, #421
Oklahoma City, OK 73159
(405) 681-5991
Deadline: 5th

New Member:
Chester Jaffee
2321 Russell St.,
Apt. 3H
Berkeley, CA 94705

Renewals:
Michael Albanese, Tom Bishop, Don Blevins, James Brown, Jr., Frank Hostetler, Carlton Howington, Harold Lane, Rod Luoma, Kent Macklin, Frank Merrill, Paul Mitschler, John Ramsey, Eric Schutz, Paul Traska, Don Voegels, Frank Wheeler, John Zeis.

Address Changes:
William Heppburn-c/o Transport Canada Training Centre-1950 Montreal Road-Cornwall, ON K6H 6L2
Peter Sawatzky-304 195 Natchez Road-Kitchener, ON N2B 1W2
Don Voegels-1250 Elmwood Ave.-Stockton, CA 95204

Renewals Due in April:
Earl Albin, Robert Baker, Ken Blair, Philip Boersma, Roger Bortree, Kenneth Brand, Ernie Cooper, R. Michael Ditto, Roger Durham, Richard Eddie, Eric Fader, William Feidt, Jerry Franklin, Barry Gardner, Ron Ginardi, Michel Guzzi, Harry Hayes, Robert Heckerlively, Bob Hempel, James Herkimer, Hank Holbrook, Dennis Jenkins, William Johnson, Ron LeBlanc, Greg Ledbetter, Anthony Lomazzo, Brad Lovett, Daniel Oetting, A. Robert Pantazes, Les Prus, Robert Rago, Randy Schnepf, Andrew Smith, Lee Vulgamott, William Welch, Neil Zank.

Tidbits.....
First up is a request from member Richard C. Evans: "I would like to hear from those who are interested in Christian programming on BCB, FM, and TV, with the possibility of setting up our own means of exchanging information on this format. This would be outside WTFDA, TRCA, and NRC, but serving as a means of passing information on to the clubs as well as to ourselves. Plans are still in the initial drafting stage so all ideas are very welcome. There is a good possibility that some of us will be led into a deeper ministry within the DX community. PTL." Rick's address is P.O. Box 1294, North Wales, PA 19454.

Next we have some words from William Heppburn, whose new address is above: "Greetings from my new CTH: Cornwall! It appears TV DX is out of the question here--the fact that there is cable TV is not that bad. Without the cable, all that can be received is WTTZ-5 and WNPI-18. All others (including local CJOH-8) have a black picture with distorted sound. This is apparently a result of the training equipment here--radar, ILS, glide slopes, etc., etc., etc. On a good note, FM seems to be rather unaffected--except for some livable distortion problems. Groundwave is excellent. Many Vermont stations (around 85-100 miles) are fulltime 100% P-O-K. So it appears that FM and PSB DX will be my Cornwall activities. Now for a summary of my Niagara Falls log (1976-82)....
TV: 240 from 6 provinces, 28 states, 4 foreign countries. FM: 128 from 1 province, 18 states and DC. The farthest Es was KIII Corpus Christi (1510 miles), while the best Tr was to Chicago/Green Bay (460 miles). Farthest PSB weather outlet was KEC-63 162.55 Detroit MI (225 miles). As far as the prize for the most often received (and identified) Es TV station goes, it's a tie between WEAR-3 Pensacola and KARD-3 Wichita, both received 19 times. KINE-3 Nebraska came in third with 15. Hope to keep on reporting and being an active WTFDA member."

Finally, we have a report in from member John Ramsey: "Just picked up the new Technics ST-9030 tuner after searching two months to find one--they were discontinued almost a year ago. Very fine radio, almost no front end overload even with three 50kwers within 2 miles. Haven't had much time to DX though, due to my work schedule. New 7th edition of the FM Atlas is excellent." Any leads as to where members can pick up the remaining ST-9030's, John? Sounds like something I could use. The Akai AT-V04 is nice from the standpoint of digital readout, but image rejection is poor.

See y'all next month.....73.....jz

RETROSPECT: PART THREE: A CHANGE OF COLOR (The freeze continues)



Although the establishment of a color standard was not a key factor in the freeze on television applications, certain points arose which connected the two. The FCC was revamping its set of guidelines on television, and color standards were thrown into the issues involved. One color system which played a key part would require special rulings on the use of UHF channels alone for color, and a different scan rate.

In early 1940 RCA developed an electronic color system, but it was so poor that it had to be scrapped. But in August of that same year CBS had developed what was called a "Field Sequence" color system. Developed by Dr. Peter Goldmark, it broke down a color picture into three primaries: red, green, and blue. The system called for transmitting one color at a time, alternating the colors at the end of each field. The original demonstration used 120 fields per second (40 fields, or 20 frames, for each primary), and 343 lines per frame, and was broadcast on a 6-mHz channel (50-56 mHz). Unfortunately, the 20 frames per second is within the human eye's ability to detect a flicker.

On May 3, 1941, the FCC established a set of standards for broadcast television, which included 6-mHz-wide channels, 525 lines per frame, 60 fields per second, or 30 frames. In order to conform to the 525 line standard and eliminate the flicker, CBS went to 144 fields (72 frames, 24 for each primary) per second, which required 16 mHz channels to operate. It was becoming apparent that the field sequence system would have to operate on channels other than the existing VHF channels. Interest in the UHF frequencies for television was beginning to take shape.

CBS later reduced the line rate to 441 in order to reduce the channel to 12 mHz. It was becoming obvious that color would have to be restricted to UHF, and that monochrome receivers would not be able to display images broadcast in color. Future sets would have to be equipped to receive both standards. CBS submitted this standard as a proposal to the FCC for a national standard in 1946.

Meanwhile, others were attempting to develop a color system that would be compatible with monochrome standards. RCA's next feeble attempt at color was called the simultaneous system. The three primaries were transmitted simultaneously, each at 525 lines per frame, 60 fields per second,

but required 15 mHz channels to operate. The receiver used three separate picture tubes, all displaying images on a common screen. Monochrome sets would display only the green signal, which contained most of the tonal information.

It was RCA's demonstration of this system which prompted CBS to petition the FCC to adopt the field sequence system. CBS had promised that current work on the system would shortly improve color quality, and that colorcasting could begin immediately. In January, 1947, CBS was already transmitting color signals for a demonstration. Dr. Goldmark, in replying to criticisms of distortion, dim pictures, made promises of further improvements. RCA and DuMont followed up with their own demonstrations, using other systems not currently under consideration as if to show the FCC that other alternatives to the CBS proposal can exist. The trick must have worked, because in March, 1947, the FCC rejected the CBS proposal because of (1) inadequate testing, and (2) the desire to search out other less expensive systems.

In 1948, the year of the freeze, CBS was back to a 6 mHz field sequence system, this time using 405 lines per frame while retaining 144 fields per second. This was still incompatible with monochrome systems, and fewer scan lines meant poorer resolution. A demonstration of this modified system showed excellent color and good contrast. The only flaw in the demonstration was when a dancer lost her skirt in front of the cameras.

RCA, unable to fit its simultaneous system into a 6 mHz channel, scrapped it and developed the dot sequential system. Along each scan line, the primary color changed after each successive picture element (pixel). Field two was interlaced with field one as usual, but in field one of the next frame the colors had to be interlaced with those of the first field of the previous frame, and so with the third frame. It took four fields to obtain a complete picture. Demonstrations of this system showed red smears and poor resolution.

A third contender for an approved national standard had also arisen by this time. Color Television, Inc. developed a line sequential system, in which the color changed after each scan line. The 15,750 scan rate per second actually became 5250 scan lines for each primary color. But since the 525 lines are a multiple of 3, each scan line would remain the same color for every frame. By alternating the pattern after every frame a pattern was produced that repeated itself ten times per second, but this produced a 10 Hz pulse in the picture.

In 1949 the FCC opened hearings on VHF,

UHF, and color television standards, and these three proposals went to the FCC. On October 11, 1950, under heavy political pressure, the FCC selected the CBS field sequence system, because of its superior color quality. But the battle was only beginning.

RCA and several manufacturers filed suit against the FCC at the U.S. District Court in Chicago, protesting that the FCC move would make conventional television sets obsolete because of their incompatibility with the CBS system. During that time the National Television System Committee (NTSC) was formed, consisting of an all-industry group of engineers with the purpose of designing a color system which would be compatible with monochrome, fit in a six mHz channel, and have equal resolution and good color. The court, meanwhile, upheld the FCC decision, so RCA went to the Supreme Court, which also decided in favor of the FCC.

On June 25, 1951, the first color network program was telecast, but with only 25 color sets in existence, most of which were in the New York studios of CBS. But by October of that year, the Korean War put a stop to any production of color television sets.

During the production ban the NTSC kept busy, and developed a standard which fit all the requirements: compatibility with monochrome, good color, 6 mHz channel, and good resolution. The freeze was lifted in 1952; the ban on production was lifted in March, 1953. Three months later RCA petitioned the FCC to replace the CBS system with the NTSC system as a national standard. On December 17, 1953, the FCC approved the NTSC proposal, to the joy of television manufacturers, RCA, and even CBS. The proposal specified that RCA be put in charge of color TV production, since RCA put an enormous amount of time and money into the project.

Since then, NBC, which is associated with RCA, scheduled several programs in color, but CBS, originally using RCA-built equipment, broadcast in color only on occasions, and eventually gave it up. ABC began color broadcasting in 1964. In September, 1966, all three commercial networks went to total color broadcasting.

NEXT MONTH (and maybe into May): The Thaw: Development of the Table of Assignments. Future subjects will cover early experimental television stations, history of translators, origins of commercial networks (you FM buffs should be interested in that one); development of television in other parts of North America. If you have any suggestions, send them in, but I can't guarantee anything.

REFERENCES FOR THIS MONTH:
(1) Fink, Donald G.; *Television Broadcasting in the United States, 1927-1950; Proceedings of the I.R.E.*; February, 1951; p. 116-123.
(2) Yeazel, Lynn A. "Color It Confusing: A History of Color Television," *American Broadcasting*, ed. by Lawrence W. Lichty and Malachi C. Topping; pp. 72-79.

STV DEREGULATION PROPOSED

(From the *Federal Register* dated Friday, November 20, 1981, pp. 57078-57099, comes an FCC proposal to evaluate existing rules governing subscription television. This report is of interest not only because of its effect on the future of STV, but also because of statistics contained within the report. The statistics are accurate up to April 1, 1981, so they're a bit behind.)

STV service was established in 1968 when the FCC established a set of rules to govern STV operations. These rules were based partly on trial pay television operations (6½ years of experimental operation by WHCT, channel 18 in Hartford, Connecticut, and five years of experimental cable operation at Entobicoke, Canada.) and partly by the FCC's cautions about keeping a balance between pay television and conventional television. Since then, the FCC has realized that their fears of STV getting out of hand were unjustified, and is now considering new proposals that will actually help STV and give it more freedom.

The first two STV facilities since the Hartford experiment were WBTW, channel 68 in Newark, New Jersey (later WTVG, now WWHT), which began operation on March 1, 1977, and KBCS, channel 52 in Los Angeles, California, which began operation on April 1, 1977. By April 1, 1981, there were 17 more stations operating STV: KWHY, ch. 22 in Los Angeles; WXON, ch. 20 in Detroit; WQTV, ch. 68 in Boston; WKID, ch. 51 in Fort Lauderdale; WBTI, ch. 64 in Cincinnati; KHXV, ch. 15 in Phoenix; WSNS, ch. 44 in Chicago; WCGV, ch. 24 in Milwaukee; WSMW, ch. 27 in Worcester, Massachusetts; KTSQ, ch. 26 in San Francisco; KAUT, ch. 43 in Oklahoma City; WIHT, ch. 31 in Ann Arbor; WCLQ, ch. 61 in Cleveland; KGCT, ch. 41 in Tulsa; KTVS, ch. 27 and KNEB, ch. 33, both in Dallas; and KTXA, ch. 21 in Fort Worth. About half of these stations were conventional independent stations before switching to STV. All STV stations provide both conventional and pay programming.

It had been originally expected that 10% of those households capable of receiving STV would subscribe, but at present it is only about 4% (cable's pay service attracts 44.9% of regular cable customers; MDS has a 4.4% penetration, in comparison.)

One rule of STV is called the "complement of four" rule. This says that there must be at least four conventional commercial television stations on the air in a community before a fifth station could become STV. But this rule leaves out the possibility of STV in most communities. But there have been applicants for STV seeking a waiver of this rule. WBF, channel 45 in Baltimore, one of four commercial stations in that city, is seeking a waiver. An applicant in Pembina, North Dakota for a vacant VHF assignment, is applying for STV even though Pembina has no other station, and receives only one distant station at present.

Another rule being reconsidered requires at least 28 hours of conventional programming

per week. The FCC is also reconsidering the rule against sales of decoders, which at present can only be rented.

The original intention of the FCC was to protect conventional television from being displaced by STV, but development over the years indicated that those rules are not only overprotective, but actually hinder the development of UHF television, since there are still many vacant UHF channels around, which could be filled by a STV applicant.

One thought is to reduce the number of complements, which would increase the number of available markets and the number of potential audiences. However, the FCC would like to see a complete removal of the complement requirements, making every community a potential STV market.

Instead of the 28-hour rule, the FCC would like to modify the rule to one based on the number of conventional stations in the same market. For example, an STV station with a complement of three conventional stations would be required to broadcast only seven hours of conventional programming. A station with a complement of one conventional station would be required to broadcast fourteen hours of conventional programming.

The FCC proposes allowing decoders to be either purchased or leased. The present rental-only ruling was designed to protect the consumer from equipment becoming obsolete should the STV station cease broadcasting. But now that STV seems to be established in many communities, the FCC hopes to give the public and the station a choice between sales and rentals of decoders. But there is concern about the increased potential for tampering. The decoder acts as a receiver, billing mechanism, and security device, and there is a caution about the potential of tampering to circumvent the billing.

Technical standards for television fall into two categories: those involving interference between stations, and those involving the quality of the transmitted signal (sound, color, frequency response, noise level, etc.). It is with respect to the second category that STV has failed to meet technical standards. Because of this, STV stations have been granted either special temporary authorizations (STA's) or program test authorizations (PTA's). STV suffers from high noise levels and poor frequency response. The FCC suggests giving STV its own set of standards, easier than those for conventional television, and allowing consumer demand for quality to be the motivating force for developing and efficient STV system. Two other alternatives the FCC suggests are (1) a timetable and sets of standards which will eventually bring STV up to the level of standards for conventional television, and (2) requiring future STV stations to meet existing standards while allowing existing stations to remain as is, with temporary authorizations.

There seems to be a new philosophy in the FCC which becomes apparent here, and in the teletext proposals discussed last month, as

well as other areas, and it seems to relate to fall in line with the Reagan administration's policy of reducing big government. This philosophy is called deregulation. Instead of the FCC adopting rules and regulations to control broadcasting, it is allowing the general public to take a greater hand. If an STV station offers poor quality, people won't buy it, and it loses business. In order to profit, it becomes necessary to offer a decent product. As far as teletext is concerned, the FCC wants to allow the general public to decide which standard it wants, forcing proponents of those standards to produce the best quality they can in order to compete. It will be interesting to see which directions a deregulation policy will take the FCC over the next few years.

CORRESPONDENCE

From Bill Draeb: confirmation that KENW, ch. 3 in Portales, New Mexico and KFDX, ch. 3 in Wichita Falls, Texas are 10 kHz apart, as Robert Grant reported, contradicting the Table of Assignments. Bill also says that he logs CBHT in Nova Scotia right on its carrier frequency, without any 3-4 kHz stray. (VHF translators can stray 0.02% from their carrier frequency, which means a translator on channel 3 can stray 12 kHz. I don't know how far the Canadian government allows stations on nonassigned channels to stray.)

After receiving Bill's letter, I decided to look into this further. I wrote to NFDX and got this reply from Chief Engineer Bill Enloe: "KFDX TV... is operating... at +1010 Hz offset.... We are using a Tractor Presise Frequency System to maintain our visual carrier frequency at 61,260,010 Hz and our monthly frequency measurements are traceable to WNVB in Boulder, Co." WNVB, by the way, is operated by National Bureau of Standards on 60 kHz, and its frequency is so accurate that it can be used to calibrate frequency measuring devices. I hope to have some information on the frequency of KENW next month.

From John M. Jefferson: KCBA, ch. 35 in Galinas, CA is definitely on the air now. It is a satellite of KC30, ch. 19 in Modesto. Both are bilingual Spanish and English. Note the call letters KC30, not KCE0 or KLOC as appeared in this column and the TV Station Guide. John quotes KAIL (ch. 53 in Fresno) personnel as saying their power increased from 50 kw to 250 kw despite TVSG listing of 708 kw. (the 708 kw figure was a construction permit; maybe they were granted a change. -wbf) KRBC-TV in Sacramento (ch. 31) is no longer Spanish, nor is it STV. For ch. 36 in San Jose, Calif., KTSF should read KICU (KTSF is on ch. 26, not 36.) KVOP, ch. 38 in San Francisco is a satellite of KICU, ch. 30 in San Bernardino, both owned by Voice of Faith, and both go heavy on solicitations. (you should see their setup in Connecticut; they own WHCT, ch. 18 in Hartford (of STV fame), which plays videotapes sent in from California, or else they broadcast a live audio-only linkup from California while a man at WHCT's studio shows a slide of

Whoever is singing or talking. Apparently they broadcast their own material and use absolutely no syndicated religious programs. -wbf)

Ron Purdue went to California during the Christmas holidays and dug up the following information: KJOG-TV, ch. 51 in San Diego is not yet on. KWHY, ch. 22 in Los Angeles is using SelectTV STV service while KRSC, ch. 52 in Corona has OM-TV. Neither station uses barkers. (Actually, STV stations have been cutting down on barkers since the Barkers Union has been demanding higher wages and more flea collars. -wbf) WTMB-TV, ch. 43 in Tomah, Wisconsin is not yet on the air because of financial problems; give them another year. Same with KLLI in St. Cloud. (same with WTPDA Reprints! -wbf) Ron also raised a few questions which I should clarify after having studied further. WFBT, ch. 29 in Minneapolis, will operate on 1811 kw ERPvis, not 1181. I also questioned why two construction permits were granted for that channel (To Faith Broadcasting Network and to Channel 29 Television, Inc.) but since then learned that Faith Broadcasting transferred its construction permit to Channel 29 Television with FCC approval. Don't be surprised if the call letters are changed in the near future.

Phil Sullivan sent an interesting response to my question about turning off decoders by remote control. "To answer your question re WSMW-27 decoders - yes they can remotely turn off a delinquent decoder. Those white pulses, 27 in each of lines 10, 11, 12 & 13 of the VBI, are instructions to a microprocessor in the box. Each box has a serial number that is burned into a PROM - this number is read into the uP and it monitors the messages for one addressed to it and then turns off or on as instructed. The codes sent are only for this control purpose; they have nothing to do with the actual scramble. It is possible to descramble the pix without ever cracking these codes. This system is made by Zenith and is used by WIHT-31 and WCLQ-61 and maybe by KTW5-27. The WQCR-50 sounds like the same system."

For those of you who are into video recorders, a few interesting notes from Morrie Goldman: "There are strong indications that all of the major producers of consumer VCRs have already agreed, or are about to agree on a world standard for 1/4" (approx.) tape VCRs. The group not only includes the Japanese manufacturers, but Philips as well, and probably one US supplier. While these manufacturers would like us to believe that the standard is being developed for portable use only, there is a good chance once the new format is introduced, Beta, VHS, and the Philips 1/4" standard will slowly fade away. First of the new VCRs may be available late this year, but '83 is more likely." Morrie also responds to the issue of determining carrier offsets by CCI patterns. "On the subject of offset reading. I'm going to take a somewhat fence sitting position. I will defend the capability to determine the offset by the number of lines involved;

however the success of using this technique is limited by the ability of the DXer. In many cases the ability must stem from a lack of understanding of a poorly explained technique. Many DXers react more to a CCI pattern from past experience than to the number of lines 'counted.'" "...the difference in number of lines visible for a 10kHz offset vs. a 20kHz offset is not as great as some explanations have suggested. You may also be correct that the slope of the lines making up the CCI pattern indicate the offset frequency created. It is possible that this trait is one that experienced DXers mentally factor without much thought."

One of my references for the "Retrospect" series is from L.R.E. Proceedings, dated February, 1951, pp. 116-123, in an article by Donald G. Fink entitled "Television Broadcasting in the United States, 1927-1950," from which I quote this description: "The average beat frequency of 10.5 Kc produces a large number of venetian-blind bars, each occupying about three adjacent scanning lines. Since each interference bar is thereby confined to the space occupied by two successive lines in a single field scanning, the average tone produced tends toward a neutral gray, and the effect is subjectively much less annoying than if the carriers were within a few hundred cycles of one another, as is usually the case between unsynchronized carriers." Tom Yingling sent me an article from the Dec. '75 CATV magazine (for cable companies). In it is an article on measuring cable frequencies by CCI patterns. Photographs of 10 and 20 kHz CCI look very similar. One interesting thing it mentions is the existence of secondary "moire" patterns in the form of wide, notably diagonal bars appearing in CCI above 15,750 Hz. I've noticed these patterns on occasions myself, but I suspect it can also be seen on 10 kHz. An interesting project for club members would be to look for this type of pattern; let me know your results.

Ron Purdue (back home now) sent an article from the Rochester Post-Bulletin, dated Wed. January 6, 1982 which gives a chronology of the applications for channel 47, as well as an insight for the procedure of applying for a broadcast station. L.E.O. Broadcasting applied for channel 47 in Rochester on August 18, 1981. The FCC policy is to leave the vacant channel available for anybody else to apply as a "last chance." The deadline was set at October 7, and the matter was publicised. Sterling Communications made an application on October 6, but it didn't reach the FCC until October 14 (typical for the post office). The FCC rejected the Sterling application. Robert S. Stone, lawyer for Sterling urged the FCC to accept it since it was made before the deadline. L.E.O. urged the FCC to stick to its decision. Stone criticized L.E.O.'s response as "nothing more than a smoke screen for its own private interests." (Tough beans fell; that channel was vacant for years and your client never bothered with it until somebody else wanted it. I know children that act that way. Sorry,

Ron, but morons like Sterling and Tulsa 23 really burn me up. -wbf)
That's about it for this month. As you can see, correspondence has been heavy. This column didn't include requests for information, which was also heavy. I still have information sent to me from Ken Onyschuk on station ownerships, which I plan to use next month with an insight into FCC rules on cross-ownerships and multiple-ownerships. One request I would like to make is that, when you write about a station, include its channel, city, and call letters.

Also, when sending information from sources other than personal observation, please give that reference. I know that I have been guilty of that at times also. I don't question the sincerity of members who send in information, but it may be necessary to question the accuracy of the original reference. Those familiar with Broadcasting know what I mean.

APPLICATIONS FOR NEW TELEVISION STATIONS:

ch	ERP	HAAT	City/state/applicant
46	5000	1068	East St. Louis, IL; Minority Broadcasters of E. Sr. Louis Inc
9	74	178	Caldwell, ID; Benjamin B. Moore
16	179	1025	Quincy, IL; Believer's Broadc'g
15	2.31	117	Fargo, ND; Fargo Broadc'g Co.
44	1547	459	Waco, TX; Waco Community Media
61	1004	963	Bay City, MI; VistaCom, Inc.
29	1279	538	Hobbs, NM; Hobbs Family Telev.
8	316	1153	Johnstown, PA; Johnstown Family Television, Inc. (My question last month about WJAC was dumb. I was confusing ch. 6 with ch. 8, which is a recent VHF deopin. The TV Guide does contain listings for WJAC.)
21	3622	1849	Florence, SC; Southern Metro Telesystems, Inc.
49	5000	459	Racine, WI; Racine Telecasting Co. (previously dismissed but reinstated by the FCC.)
54	772	871	Huntsville, AL; North Alabama Broadcasters
51	621	729	Pittsfield, MA; Housatonic Bc'g
40	5000	1783	Beaverton, OR; TS-3 Communications, Inc.
40	5000	1740	Portland, OR; Allied Broadc'g
48	12.5	561	McAllen, TX; Carlos Ortiz
-	100	-	San Jose, CA; Satcom, Inc. Ant. 36' above ground; applying for ch. 15, 30, & 68. Experimental.
32	132	785	Toccoa, GA; Stephens County Broadcasting Company
63	208	1039	Kingston, NY; Woodstock Broadcasting Group, Inc.
40	5000	1870	Portland, OR; Portland Television Association Ltd.
40	3451	1787	Portland, OR; Vince Communicat's
8	80	285	Johnstown, PA; Group for the Advancement of Telev. Service
36	1276	1127	Bayamon, PR; Caribbean Bc'g Inc
36	1183	1258	Bayamon, PR; Puerto Rico Family Television, Inc.
51	773	565	Pittsfield, MA; Pittsfield Community Television, Inc.
35	4036	986	Richmond, VA; WRLH-TV
61	1963	631	Ashland, KY; WTSP

APPLICATIONS DISMISSED BY THE FCC
Topeka, KA; ch. 49; Capcom
Eugene, OR; ch. 16; Community Vision Systems, Inc.; Sterling Recreation Organization Co.
Spokane, WA; ch. 28; Springfield Television of Washington, Inc.
Florence, AL; ch. 26; Channel 26, Inc.
Lansing, MI; ch. 53; Kare-Kim Broadcasting Co
Utica, NY; ch. 33; Manning Telecasting, Inc.
Portland, OR; ch. 24; Broadcast Associates
Rochester, MN; ch. 47; Sterling Communications, Inc. (returned; failed to meet the deadline for filing)
Miami, FL; ch. 39; Florida Broadcasting Ministry, Inc.; Sun Belt Broadcasting, Inc.

CONSTRUCTION PERMITS GRANTED BY THE FCC
ch ERP HAAT city/state/applicant
49 5000 1049 Topeka, KA; Mid-American Broadcasting of Topeka, Inc.
4 42.5 -17 Anchorage, AK; Totem Bc'g Corp.
58 2388 -135 Sierra Vista, AZ; Sierra Vista Television, Inc.
28 5000 1313 Hardeeville, SC; Business and Minority Coalition Broadcasters
36 1380 1090 Lansing, MI; P&S Comm/News Inc.
60 5000 1615 Aurora, IL; construction permit shared by Metrowest Corp. and HATCO-60
16 1855 1685 Eugene, OR; KMTR, Inc.
28 888 2000 Spokane, WA; JusDan Inc.
35 759 460 Marshall, TX; Holt-Robinson
31 12.5 514 Victoria, TX; Community Television of Victoria, Inc.
64 140 945 Seaford, DE; Delaware Citizens Committee
26 701 759 Florence, AL; Alabama Management Corporation
53 1417 976 Lansing, MI; Benko Broadcasting
5 5.02 465 Reno, NV; Channel 5 Public Bc'g
4 100 1515 Lander, WY; Central Wyo. College
24 124 319 Moline, IL; Black Hawk College
2 88 1960 Santa Fe, NM; Mexico Media, Inc.

APPLICATIONS TO MODIFY CONSTRUCTION PERMIT
10 114 1582 Charlotte Amalie, VI; WBNB-TV
56 382 2386 Anaheim, CA; KGOF-TV (original CP was granted 10/15/75) Change TL to Sunset Ridge, 5 miles northeast of Clarendon
60 ? 1408 Harlingen, TX; KZLN; TL 1.6 mile northeast of Santa Maria
25 2040 1360 Alexandria, LA; KLPB-TV; TL 0.6 mile SSE of Rte 123; 1.3 mile west of Rte. 167, near Dry Prong
44 905 677 Lima, OH; WLTW
7 55.6 1688 Chicago, IL; WLS-TV
66 794 679 Opelika, AL; WSWS
67 1429 288 Canton, OH; Canton 67
14 1500 1285 Hays, KA; KSMH-TV; TL 7 miles SSW of Bunker Hill.
30 89.1 610 Meridian, MS; WLBW-TV

CONSTRUCTION PERMIT MODIFICATIONS GRANTED
21 1024 1343 Homewood, AL; WTOG
59 116 1290 New Haven, CT; WTVU
20 2388 ? Waterbury, CT; WATR-TV
26 5000 - Houston, TX; KRIV-TV
43 156 607 Myrtle Beach, SC; WGSE
60 - 1408 Harlingen, TX; KZLN
28 2950 990 Tampa, FL; WFTS
56 3266 2386 Anaheim, CA; KGOF

APPLICATIONS TO CHANGE EXISTING FACILITIES
ch ERP HAAT city/state/station
3 100 1895 Charlotte, NC; WBTW; TL to Colt Thornburg & Philadelphia Church Roads, Rte. 3, Dallas
52 126 395 Newark, OH; WSPJ; also, change to ch. 51. The FCC changed the Newark assignment last year to help the Canadian CRTC revise its allocation plan,
44 1974 1414 St. Petersburg, FL; WTOG
18 5000 1873 Charlotte, NC; WCCB; TL same as WBTW (see above)
9 316 1900 Charlotte, NC; WSOC-TV; TL 2.2 miles north of Dallas
36 5000 1889 Charlotte, NC; WPCQ-TV; TL 0.65 mile north of State Route 1804, between Routes 1101 and 1805 in Dallas. (Did Charlotte raise its real estate taxes or something?)
13 316 1012 Jefferson City, MO; KRCC
27 100 1250 Madison, WI; WKOW-TV
4 100 1995 Columbus, MS; WCOB-TV; TL 4 mi. northeast of Montpelier

CHANGES IN EXISTING FACILITIES GRANTED
45 5000 n.c. Baltimore, MD; WBFF
8 316 953 Duluth, MN; WDSB-TV; TL to 1524 Orange Street, Duluth
16 2600 1029 Joplin, MO; KTVJ (began 10/24/81)
41 1000 500 San Antonio, TX; KWEX (began 12/6/81)
39 4508 1679 Dallas, TX; KXTX-TV (began 12/11/81 with PTA)
28 470 n.c. Wilkes Barre, PA; WBRE-TV
46 156 769 Clarksville, WV; WLYJ
19 1270 n.c. Norfolk, NE; KKNE-TV
2 28.2 ? Fairbanks, AK; KTTU-TV (began 1/9/82)
10 47 2000 Roanoke, VA; WSLS-TV; TL west of the intersection of routes 916 and 612; 13 miles southwest of Roanoke, on Poor Mountain.
3 64.6 1935 Wilmington, NC; WWAY (The National Guard will need a Sherman Tank for that one!)

CALL LETTER APPLICATIONS: NEW STATIONS
64 WDPB Seaford, DE; Delaware Citizens Committee
58 KCCA Sierra Vista, AZ; Sierra Vista Television, Inc.
21 WMPV-TV Mobile, AL; Mobile-Pensacola Broadcasters, Inc.
58 KSCH-TV Stockton, CA; Wm. H. Schuyler Co.
24 WQPT-TV Moline, IL; Black Hawk College
49 KTCK Topeka, KA; Mid American Bc'g
67 WCAC Canton, OH; Canton 67
23 KAVU-TV Spokane, WA; JusDan, Inc.
4 KCNC-TV Lander, WY; Central Wyo. College
60 WPWR-TV Aurora, IL; Metrowest Corp.
36 WFSL-TV Lansing, MI; P&S Comm/News Inc.
20 KFBW Tacoma, WA; Family Broadcasting

CALL LETTER APPLICATIONS: CHANGE EXISTING
43 WCPY-TV York, PA; WSBA-TV
24 WGXA Macon, GA; WNLG

CALL LETTERS ASSIGNED: CHANGE EXISTING
10 KISU Pocatello, ID; KBGL-TV
9 KEYC-TV El Centro, CA; KECC-TV

CALL LETTERS ASSIGNED: NEW STATIONS
16 KMTR-TV Eugene, OR; KMTR-TV, Inc.
56 WDAI Gary, Ind.; Great Lakes Broadc'g
25 KAVU-TV Victoria, TX; Community Broadc'g of Coastal Bend, Inc.
32 WLAE-TV New Orleans, LA; Educational Broadcasting Foundation, Inc.
30 WLBW-TV Meridian, MS; TV-3, Inc.
47 KBJH Tulsa, OK; Church of the Christian Crusade, Inc.
61 WLXI-TV Greensboro, NC; Consolidated Broadcasting Corporation
56 WIAH Fairfax, VA; Central Virginia ETV Corporation
27 KLWY Cheyenne, WY; Chrysostom Corp.

STV AUTHORIZATION GRANTED
60 Aurora-West Chicago, IL; Channel 60 Ven-22 Salem, OR; KECH (ture)
STV DISMISSED
38 St. Petersburg, FL; Minority Broadcasters

CONSOLIDATED HEARINGS
• High Point, North Carolina; ch. 67; Fox Media, Inc.; Triad Family Television, Inc.; High Point Community Television, Inc.
• Jackson, Mississippi; ch. 40; Media South Broadcasting Corp.; Jackson Family Television, Inc.; Big River Broadcasting Co.; Television Corporation of Mississippi.
• Sikeston, Missouri; ch. 45; Robert Paul Owens; O. L. Turner.
• Applicants for the following two assignments are consolidated into one hearing because of short-spacing problems involved in some of the applications. Vallejo, California; ch. 66; Redwood Television Ministries, Inc.; Golden State Television, Inc.; Bay Area Community Television, Inc.; Stockton, California; ch. 64; Family Stations, Inc. (17.5 miles from proposed "Golden State" and "Bay Area Community" applications); Sterling Recreation Organization Company.
• Colorado Springs, Colorado; ch. 21; Light Communications, Inc.; Quality Media Corp.
• Wilmington, Delaware; ch. 61; Sixty-One Corp.; HHL Broadcasting, Inc.; Delaware Valley Broadcasters, Inc.; Wilmington Channel 61, Inc. (Because of the FCC's one-to-a-market ruling and their connections with WBFF-TV in Baltimore, they would need to null their signal toward Baltimore); Ebony Broadcasting Corp. (STV proposed); Wilmington Communications, Inc. (STV proposed; Wilmdel, Inc.); Wilmington Broadcasting Company.

RESULTS OF CONSOLIDATED HEARINGS
• Spokane, Washington; dismissed application by Springfield Television of Washington, Inc. and granted JUSDAN, Inc. for ch. 28.

STATIONS ON THE AIR
34 KJAA Lubbock, TX; 12/10/81
4 KJNP-TV North Pole, AK; 12/7/81
28 WFTS Tampa, FL; 12/14/81
23 KVBO Brownsville, TX; 12/18/81
22 WLFL-TV Providence, RI; 12/18/81
64 WSTG Providence, RI; 2/2/82
64 Seaford, DE; 12/4/81 (granted STA and temporary call letters; now WDPB.)

mystery SCA

by Nick Lombardi

One thing that has always puzzled me is the large number of "unknown format" SCA stations which exist. The new, seventh edition of the FM Atlas lists almost 250 such stations! Surely, with the proliferation of SCA adapters now in use, a large number of these should be able to be identified. The list which follows was compiled from the 1982 edition of the FM Atlas, plus the December, January, and February FCC-FM VUD columns. Any information on what, if anything, is on these SCA subcarriers should be sent direct to Bruce Elving (4515 Avenue "E", Kearney NE 68847) for use in his column. A word of warning: SCA reception requires much greater signal strength than does mono (or even stereo) FM, so be sure your signal is strong enough, and that you listen for a long enough period of time, before concluding that a particular SCA is not in use.

AL Decatur WBOQ 91.7, Decatur WRSA 96.9, Fairhope WHSP 92.1, Huntsville WAHR 99.1, Troy WRES 105.7, Tuscaloosa WUAL 91.5, Tuscaloosa WUOA 95.7
AK Anchorage KSKA 103.1, Anchorage KNIX 105.5
AZ Flagstaff KFLG 92.9, Phoenix KOOL 94.5, Phoenix KNIX 102.5, Tempe KUPD 97.9, Tuscon KNDE 99.5, Yuma KJOK 93.1
AR Augusta KABK 97.7, Berryville KSCC 107.1, Fayetteville (calls not yet assigned) 88.9, Harrison KHQZ 102.9, Hot Springs KAQZ 106.3, Lake Village KLVA 95.9, Little Rock KLRE 90.5, Ozark KZRK 96.7, Pine Bluff KFXE 92.3
CA Big Bear Lake KTOT 101.7, Bishop KIQO 100.7, Blythe KJMB 100.3, Buena Park KBPK 90.1, Camllian Bay KEZC 101.7, Cathedral City KWKY 98.5, Dinuba KLTA 98.9, Escondido KOWN 92.1, Fresno KFCF 88.1, Garden Grove KIKF 94.3, Hemet KHVE 105.5, Lancaster KOTE 106.3, Mariposa KUEB 96.3, Palm Springs KDES 104.7, Redding KVIP 98.1, Riverside KSGN 89.7, Roseville KPQP 93.5, Sacramento KKPR 88.9, Sacramento KAER 92.5, Santa Marina KXFM 99.1, Santa Paula KKBZ 96.7, Thousand Oaks KCFB 91.1, Thousand Oaks KNJO 92.7
CO Durango KRJS 100.5, Glenwood Springs KMTS 92.7, Pueblo KZLO 100.7
CT Bridgeport WPKN 89.5, W. Hartford WUWH 91.3
FL Boynton Beach WHRS 90.7, Fort Lauderdale WHYI 100.7, Goulds WGLY 98.3, Lehigh Acres WSWF 107.1, Miami WDNA 88.9, Naples WNGI 93.5, Ocala WMFQ 92.7, Palm Beach WRMF 97.9, Tallahassee WOND 103.1, West Palm Beach WBAT 104.5, Winter Park WLOQ 103.1
GA Jesup WIFQ 105.5, Savannah WEAS 93.3, Valdosta WGOV 92.9, Vidalia WTCQ 97.7, Waynesboro WNGA 100.9
ID Caldwell KBXL 94.1, Idaho Falls KQPI 99.1, Jerome KPMA 102.9, Moscow KRPL 103.9, Nampa KUUZ 96.9, Pocatello KZBQ 93.7, Rexburg KROZ 98.3, Twin Falls KEZJ 95.7
IL Monticello WTLJ 105.5, Pontiac WPOK 103.1, Rock Island WVIK 90.1, Vandalia WKRV 107.1
IN Alexandria WAXT 96.7, Salem WSLM 98.9
IA Fairfield KBCT 95.9, Forest City KIOW 102.3
KY Bowling Green WKYU 88.9, Catlettsburg WCAK 92.7, Elkhorn City WECL 103.1, Hopkinsville WQOA 100.3, Middlesboro WMIK 92.7, Murray WKMS 91.3, Pikeville WDHR 92.1, Winchester WFMI 100.1
LA Alexandria KQID 93.1, Donaldsonville KSMI 104.9, Eunice KJJB 105.5
ME Gardiner WABK 104.3, Presque Isle WMEM 106.1
MD Oakland WKIE 92.1
MA Boston WUMB 91.9, Hyannis WOOD 106.1, Springfield WCCC 90.7
MI Benton Harbor WHFB 99.9, Holland WJBL 94.5, Houghton WHUH 97.7, Jackson WIBM 94.1
MN Crookston KDZW 97.1
MS Corinth WADI 95.3, Drew WDRU 95.3, Greenville WBAQ 97.9, Greenville WMSM 100.7, Leland WBAD 94.3, Ocean Springs WOSM 103.1, Tupelo WZLQ 98.5, Vicksburg WQMV 98.7, Vicksburg WKTV 106.7, West Point WKBB 100.9
MO Bethany KAAK 95.9, Branson KIRK 106.3, Carrollton KAOL 101.1, Jefferson City KJMO 100.1, Springfield KSMU 91.1
MT Billings KKOZ 97.1, Butte KOPR 94.1, Havre KPQX 92.5, Livingston KYBS 97.5, Missoula KDXT 93.3, Missoula KYSS 94.9, Missoula KYLT 100.1, Ronan KQRR 92.3
NE Terrytown KCMJ 103.9
NV Reno KOZZ 105.7
NH Newport WCNL 101.7
NJ Canton WNNN 101.7, Newark WBGO 88.3, Newark WHBI 105.9, Point Pleasant WADB 95.9, South Orange WSOU 89.5, Toms River WOBN 92.7, Wildwood WNBR 100.7
NM Albuquerque KUNM 90.1, Albuquerque KKFU 91.5, Albuquerque KXKL 94.1, Artesia KTZA 92.9, Aztec KWYK 94.9, Espanola KEVR 102.3, Farmington KRAZ 96.9, Roswell KBIM 94.9, Santa Fe KSNM 95.5
NY Hammondsport WVIN 98.3, Jamestown WNSE 93.3, Montour Falls WXXY 104.9, Newburgh WFMN 103.1, New York WNYE 91.5, WCBS 101.1, Olean WEBF 95.7, Oswego WRVO 89.9
NC Reidsville WMMO 102.1, Southern Pines WIOZ 107.1, Whiteville WQTR 99.1, Winston-Salem WKZL 107.5
ND Bottineau KBTO 101.9, Minot KCJB 97.1
OH Cleveland WDOK 102.1, Gahanna WCVO 104.9, Hamilton WHSS 89.5, Norwalk WLKR 95.3, Ottawa WPNM 106.3, Toledo WIOT 104.7
OR Medford KMTI 93.7
VA Linesville WCCC 101.7, Mechanicsburg WQVE 93.5, New Kensington WNUF 100.7, Williamsport 102.7

SC Chester WDKZ 99.3, Darlington WDAK 105.5, Florence WSTN 106.3
TN Germantown WLVN 94.3, Jackson WJHR 103.1, Memphis KWAM 101.1, Pulaski WMGL 98.3
TX Big Spring KPNE 95.3, College Station WTAW 92.1, Comroe KJOJ 106.9, Diboll KIPR 95.5, Edinburg KBFM 104.1, El Paso KTEP 88.5, Jacksonville KOOI 106.5, La Mesa KCOT 104.7, Mc Allen KQXX 98.5, Mc Kinney KMMK 95.3, Odessa KKKK 99.1, Paris KTXU 99.3
UT Cedar City KBRE 94.9, Ogden KDAB 101.1, Ogden KQPD 101.9, Provo KFMY 96.1, Salt Lake City KSPI 100.3
VT Burlington WQCR 98.9, Burlington WVPS 107.9
VA Farmville WFLO 95.7, Front Royal WLXV 95.3, Harrisonburg WMRA 90.7, Lynchburg WKZZ 100.1, Lynchburg WJJS 101.7, Petersburg WPLZ 99.3, Richlands WGTN 105.5
WA East Wenatchee KTRW 97.7, Edmonds KBIQ 105.3, Moses Lake KWIQ 100.3, Wenatchee KPQ 102.1, Yakima KUEZ 104.1
WI Hayward WOJB 88.9, La Crosse WLSU 88.9, Madison WORT 89.9
WY Casper KAWY 94.5, Cheyenne KFBO 97.9, Lander KDLY 97.5
PR Arecibo WCMN 107.3, Cidra-Caguas WBRQ 97.7, Pajardo WDOY 96.5, Guayama WXRJ 106.9, Isabella WKSA 101.5, Mayaguez WOYE 94.1, Mayaguez WKJB 99.1, San German WRPC 95.1, San Juan WIPR 91.3, San Juan WZNT 93.7, Vieques Island WLID 98.9
AB Edmonton CKUA 94.9, Peace River CKUA 96.9
NF Argentia CPOZ 100.3, Bonavista CJOZ 92.1, Corner Brook CKOZ 92.3, Marystown CIOZ 96.3, Ratting Brook CHOS 95.9, Red Rocks CKSS 96.9, St. Johns CHOZ 93.9, Stephenville CIOZ 98.5
ON Toronto CHFI 98.1
RQ Laval CFGL 105.5

The Spring E-skip season will soon be upon us, so remember to check the SCA status of all those distant stations that come booming in!

FM STATIONS

Fred Nordquist
7945 Boxford Road
Clay, NY 13041

Deadline: the 5th

		FM SCOREBOARD												
Dker, Location	Rank	Total	88-92	Es	MS	AU	USA	CN	MX	FO	TPU	YB	As of:	
Ardy Bolin, Charleston IL	1	2059	331	299	103	286	45+	7	5	3	61	70	9/4/81	
Bruce Elving, Duluth MN	2	1473	130	685	8	7	44+	3	1	0	49	48	11/13/81	
Dannv-Buntin, Stillwater Ok.	3	1355	185	750	3	0	47+	5	9	0	62	74	2/1/82	
John Ebeling, Bloomington MN	4	1341	196	751	38	77	47+	4	5	0	57	52	1/1/82	
Fred Nordquist, Clay NY	5	1154	171	542	27	44	39+	5	0	2	47	69	9/5/81	
Mike Bugaj, Enfield CT	6	1080	131	576	8	20	37+	3	0	1	42	74	10/27/81	
Peter Sawatzky, Guelph ON	7	1065	164	498	112	5	38+	7	0	1	47	71	8/22/81	
Fred McCormack, Des Lacs ND	8	1039	133	784	25	77	44+	6	4	0	55	65	8/30/81	
Ralph Strobel, Muncie IN	9	1016	263	113	20	0	33+	3	0	0	37	72	11/30/81	
Tim McVey, Bolivar TN	10	900	135	269	0	0	39	4	5	0	48	77	1/1/82	
Vernon Eaton, Benton AR	11	724	148	173	1	3	42	5	8	0	55	77	8/30/81	
Dave Brumfield, Muncie IN	12	658	141	43	1	0	28	1	0	0	29	78	11/30/81	
David Nieman, Akron NY	13	650	149	120	13	8	35+	5	0	2	43	59	11/14/81	
John Jefferson, Pleasanton CA	14	573	113	300	79	0	21	4	2	0	27	57	8/28/81	
Richard Wood, Cape Girardeau MO	15	491	84	160	1	0	41	4	4	0	49	79	7/10/81	
John Ebeling, Prossit MN	16	430	64	172	2	5	39+	5	0	0	45	75	1/1/82	
Pat Durkin, West Allis WI	17	418	86	70	0	0	31+	3	0	0	35	78	7/31/81	
Ken Simon, Lake Worth FL	18	390	119	301	0	0	31+	2	1	4	39	66	9/1/81	
Daniel Cetting, Broomall PA	19	358	77	104	0	0	26+	1	0	0	28	77	7/22/81	
Alan Michalek, Springfield MA	20	306	31	138	0	0	30	4	0	0	34	52	7/29/81	
Dave Hascall, Fortville IN	21	243	42	44	1	0	22	3	0	0	25	76	8/29/81	
Robert Ross, London ON	22	199	39	16	0	0	14	1	0	0	15	76	12/10/81	
Bob Schweitzer, E. Brunswick NJ	23	191	64	7	0	0	9+	0	0	0	10	77	1/31/82	
Frank Wheeler, Erie PA	24	145	16	3	0	0	7	1	0	0	8	64	10/30/81	
Ken Ornschuld, Park Forest IL	25	133	22	2	0	0	7	0	0	0	7	68	11/30/81	
Wm Hepburn, Niagara Falls ON	26	126	45	33	0	0	18+	1	0	0	20	79	8/10/81	
Pat Durkin, W. St. Paul MN	27	100	11	0	0	0	5	0	0	0	5	81	7/31/81	

Those individuals who didn't submit FM Scoreboard updates in 1981 have been dropped from the rankings. States Stats and New FM Distance records next time. 73 -- Fred.

SOUTHERN FM DX

Danny Buntin, editor
1312 N. Skyline
Stillwater, OK 74074
DEADLINE: 5th

MARCH 1982

For FM DX reporters from: AL, AR, AZ, CA, CO, DE, FL, GA, KS, KY, LA, MD, MS, NC, NM, NV, OK, SC, TN, TX, UT, VA & WV.

-MORE RESULTS IN ON THE EARLY JANUARY ES-

CALIFORNIA GETS LOTS OF METEOR SCATTER

Jim Pizzi, P. O. Box 1778, Lovington, NM 88260 - Dec. 12, '81 to Jan. 4, '82 MST

12/12 tr
2254 KHBQ 107.1 TX "Canyon-Amarillo", \$, r, ID# 2302, "Q-107"
12/14 Es
0932 unIDs to 90.7
tr
0956 KACV 89.9 TX Amarillo, nx

1/1 Es
1722 WQSM 98.1 NC Fayetteville, nx
1731 WROQ 95.1 NC Charlotte, 95-Q, also Q-95
1803 WKBJ 92.3 TN Milan
1826 WFBC 93.7 SC Greenville, F-94
1857 WKJJ 99.7 KY Louisville, KJ-100
1858 WXLN 103.9 KY Louisville, g
1859 WKY 104.1 IN Evansville, ID
1901 WVHI 105.3 IN Evansville, ID, g
1910 WVPR 102.7 IN Terre Haute, ID, r
1920 WIFL??95.3
1922 WFMA??95.3
1930 WVJC 89.1 IL Mt. Carmel, ID, r
1942 unID 92.1 "92 CITY FM" (No doubt CITY, Winnipeg, MB, DB.)
--1901 WAMZ 97.5 KY Louisville, ID

Finally got the tower up (Tri-ex MW-65 crank up-65'). Normal reception is out to 200+ mi., so I'll report only new loggings in this range or something that's newsworthy--non-IDs, call changes, etc. Es opening on the first of Jan. was intense--3 hours long. Tv was a mess, so I concentrated on the FM, a nice surprise when it swung north into Manitoba. Year got off to a good start, hope it keeps up. Totals now 93. 73.

Tim McVey, Rt. 3 Box 568, Boliver, TN 38008 - Oct 1 to Jan. 1 CST
Equip.: JVC JT-V22 tuner, Finco 10-element antenna with rotor at 40'.

My log finishes up for the year at 900 stations from 40 states, from 748 and 38 at 1/1/81. By the time this gets into the members' hands, the spring tropics should be rolling in. Good luck!

Have had very little time for DXing(boo-hoo...). Seems this minor little thing came up, it's called college...

8/12 tr
0805 KLEB 100.7 MO Harrisonville, r
0812 KBEX 103.7 MO Lexington
0815 KSWT 107.7 KS Topeka, e
0800 relogs of Kansas City
9/3 tr
0945 KWLS 93.1 KS Pratt, k
0950 KJEL 103.7 MO Lebanon, k
0952 KLOQ 106.1 KS Lyons, mr
0953 KBUZ 106.5 KS Arkansas City, pr
1000 KSCM 99.3 MO Houston, ID

9/4 tr
0828 KRNA 93.9 IA Iowa City, r
11/28 tr
1030 a nice little opening to Houston, with KYND 92.5, KRLY 93.7, KQXY "the Q", KMJQ, and "quick" KWIC in stereo.
1053 KUFD 106.5 TX Galveston, r (hope this strange call is still correct, as I

1/1 tr
2019 KRLG 98.1 OK Lawton, ID, r
Es, cont.
2021 CHMM 97.5 MB Winnipeg, "New 97-FM"
2023 CITI 92.1 MB Winnipeg, r
2026 CJCM 96.1 MB Brandon, \$, m
2031 CBWV 97.9 MB Brandon, mono, M
2032 CKSB 99.5 MB Brandon, F
2034 CBW 98.3 MB Winnipeg, c
2036 CBWV 105.3 MB Baldy Mountain, same mx as tr
2056 KICA 107.5 NM Clovis, k, "Kicker Country"
1/3 tr
2045 KQV 103.3 TX Wichita Falls, "QV-103"
1/4 tr
1955 KLOZ 102.1 TX El Paso, ads, "k-102"
1956 RFIM 92.3 TX El Paso, s.off @0900 CST
2000 KHOC 105.5 TX Levelland
2001 KHGH 105.9 MX Juarez
2006 KINT 97.5 TX El Paso, "K-98"
2325 KHBQ 107.1 TX Canyon, "Q-107"
2326 KKCC 106.9 OK Clinton
Amarillo 98.7, 97.9, 93.1
2329 KLAW 101.5 OK Lawton, "k-law"

logged this station from an ad.) (Now KXXX, DB)
11/29 tr
0905 KJJB 105.5 AR ? This station claims "24 hour country stereo" with ads for Dumas, AR. Is this really KWRP in Warren? (Yes, DB)
12/25 yuck
KWOZ 103.3 AR Mountain View, is now on with \$ country to ruin 103.3!
KZIG 89.9 AR Cave City, km\$-just what I need to the west, hi!
1/1 Es "Ring out the old, skip in the new.."
1916 KOPR 94.1 MT Butte, psa for wife beating in Jefferson Co., k\$

1920 KAMA 93.1 TX El Paso, L
1921 KTEP 88.5 TX El Paso, c, (tent.)
1930 KLYT 88.3 NM Albuquerque, g\$ (tent.)
McVey, cont.....

SOUTHERN FM DX

McVey, cont.

MARCH 1982

PART TWO. Since coming to U.T. at Knoxville (Box 934, 1910 Caledonia, 37916), I've had to start all over with a new log and situation. This World's Fair town in a valley below the Smokies has a terrible location for DXing, but a 35-mile ride up any mountain road brings in VA, NC, SC, GA, and AL very well with no interference from K'ville (sometimes no K'ville.) There's very little time for DX and a lot of frowns when I tried to sneak an antenna up on the roof of my dorm, but logs are up to 43. TVI is very rough with WATE channel SIX and a UHFer running 5 million watts, but I guess I will make it OK. My stuff includes a GE 7-4975A AM-FM-cassette clock radio with an S-shaped dipole dangling over my roommate's bed. The radio is almost as sensitive as a Superadio, but not as selective--good for SCA. I will not bore you with my groundwave stuff, (thank you, DB) but I have had a few bright spots during this cold season.

10/16 tr
1000 WXRC 95.7 NC Hickory, r, "X-rock"
10/17 tr
0000 WSM 95.5 TN Nashville, m "SM-95"
0015 WKXK 104.5 TN Gallatin, r "Kix-104"
0018 WYCG 102.9 TN Shelbyville, k "C-102"
0020 WJYN 105.9 TN Nashville, me
11/9 tr
1200 WAIM 101.1 SC Anderson, r

11/9 tr
1230 WANS 107.3 SC Anderson, r
11/10 tr
1000 WSGS 101.1 KY Hazard, k
1030 WKIT 102.5 NC Hendersonville, k
1045 WQHY 95.5 KY Prestonsburg, rm
1119 WXIK 96.1 NC Shelby, rs
11/18 tr
1445 WZXI 101.9 NC Gastonia, r

That pretty much wraps things up for this time. WUTK 90.3 is now on the air from 12:00 to 10:00 daily with mj\$. If you need a QSL, send to WUTK, Andy Holt Tower P-103, Circle Park Drive, Knoxville 37916 73's, Tim.

John Jefferson, 4016 Crest Court, Pleasanton, CA 94566

Equip.: Macintosh NRB0, Winegard GH-6065 and Alliance rotor. Underlined new, _ _ new mode, * new to Pleasanton, CV-Castro Valley.

9/29/81 gw
1238 KMAH 89.1 CA Atherton, new freq. ID 20
in CV w/Heath AR1500 - later heard in Plea
10/15 ms
0030*KQPI 99.1 ID Idaho Falls, local wx 670
gw
1500 K212AA 90.3 CA Los Gatos, KUSF ID, 36
1 watt at 35 miles (CV)
10/20 ms
0127 KXLY 99.9 WA Spokane, wx, ID 750
10/23 ms
0300*KDRK 93.7 WA Spokane, ID ABC nx 750
11/1 tr (CV)
1713 KLFA 92.1 CA King City, ID, testing 115
11/25 ms
0740*KSOP 104.3 UT Salt Lake City, calls 560
11/30 tr
1515*KNEV 95.5 NV Reno, ID, old xmit. 570'165
12/2 ms
1030 KRLZ 97.1 NM Roswell, calls 1040
12/5 ms
0539 KLMO 104.3 CO Longmont, calls 915
12/11 tr
0015*KIIS 102.7 CA L. A., Kiss, ad loc. 315 1630 KJIB 99.5 OR Portland, ID 560

Quadrantid shower a beaut--was getting 2 or 3 bursts per minute for over two hours on 97.1. Only wish one of the good frequencies (100.3 or 94.9 or 94.1, for example) had been available. KBAY 100.3 was knocked off the next day, but by then the band was dead. That's it for now...totals are 582 for bay area, 463 for Pleasanton, 205 for Castro Valley. (What CV is good for is low power xlators that can't get over the hills between here and there. Otherwise, it's pretty discouraging, being in the primary coverage areas of all the San Francisco and San Jose stations. Here I'm fairly well shielded, and have a fighting chance! Of 60-80 stations that are usable on a given day, only 4 absolutely kill their frequencies beyond any hope.)

Danny Buntin, 1312 N. Skyline, Stillwater, OK 74074 CST

1/19 tr
1101 KAJJ 106.3 AR Greenwood, ID, k, new to the air. 175

FM DX has been very quiet here since the Jan. 3 Es. 73.



NORTHERN FM-DX

Ralph Strobel, editor
2300 E. McCalliard Rd.
Muncie, Indiana 47303
Deadline: the 5th

March 1982

For FM DXers in Canada, the Northwest-Central states of WA OR ID MT WY ND SD NE MN IA MO and states east of the Mississippi River and north of the Mason-Dixon Line.

NEW ADDRESS: The city of Muncie has changed my house number from 2510 to 2300.

MORE JANUARY E-SKIP REPORTED

Harry J. Hayes - 9 Henry St. - Wilkes-Barre, PA 18702

Equipment: GE Superadio, FM4G Antenna at 25 ft. at Thornhurst, PA

10/31 tr (1981)	1/1 Es (1982)
1257 WTPA 104.1 PA Harrisburg, r	90 1828 KTEM 93.3 OK Ada
1658 WWJ 97.1 MI Detroit, el	385 1831 KGAF 94.5 TX Gainesville
1706 WRRN 92.3 PA Warren	200 1959 KANU 91.5 KS Lawrence
11/1 tr	2001 KKKX 95.7 KS Ottawa
0034 WJNL 96.5 PA Johnstown, r	170 2006 KMBR 99.7 MO Kansas City
0059 WPRE 99.9 MD Frederick, localike	150 2010 KWKI 93.3 MO Kansas City
0110 WHAJ 104.5 WV Bluefield, r, "J-104"	400 2025 KJCK 94.5 KS Junction City, r, no ID
0159 WXLK 92.3 VA Roanoke	350 2025 KYEZ 93.7 KS Salina, k, "KY"
0201 WESC 92.5 SC Greenville, k	565 (t = tentative)

The 11/1 tropo were the strongest and best noted on a tough path yet! I figured up my year end totals and 1981 only has half as many new stations as 1980 and 1979. This is due to an almost skipless summer.

Daniel E. Oetting - 2882 Old Cedar Grove Rd. - Broomall, PA 19008

Equipment: Panasonic RF-2600 w/Archer 10-element log yagi FM antenna at 25 Ft. directed to NW, and GE Superadio 7-2880B with telescoping "whip" antenna. Time in EST.

After the major tropo on Halloween, DX on the FM band, since then, has remained quite poor. Super cold arctic air masses have prevented any significant tropospheric bending to occur this winter. So far, this is the worst winter for tropo since the 77-78 season. Bringing some life to the DX this winter though, is the numerous E-skip openings. Several good E-skips were observed on TV. Unfortunately, only one of these openings brought the MUF up into the FM band.

I bought a GE Superadio in November, and I must admit it's a great radio for the money. The Superadio has a bigger speaker with better sound than my Panasonic RF-2600. On FM, the radios are about the same on sensitivity, but the selectivity on the Superadio is inferior to that of the Panasonic RF-2600. Image rejection is about equal. Overall, I find the Panasonic RF-2600 a better DX machine for FM. I'm keeping the Superadio, so that when my RF-2600 is connected to external antenna directed to the NW, I'll have a good receiver to check the conditions from elsewhere.

11/1 tr	12/12 tr
0850 WFNT 92.9 PA Pittsburgh, m	2028 WVOR 100.5 NY Rochester, ID
11/11 tr	12/14 tr
0940 WFXZt 92.9 NY Buffalo, r	0030 WUPO 93.5 PA Stroudsburg, rp, ID
11/20 tr	0056 unID 93.7 NY DePew's WBLK? STW off.
1600-2000 very good NYC tropo.	12/29 tr
11/26 tr	1016 WYRK 106.5 NY Buffalo, k, ID
1056 WCNY 91.3 NY Syracuse, ID	1/1 As
12/2 tr	??? unID 102.1 ?? WIOQ off, 2 r stations
1458 WOEL 89.9 MD Elkton, ex-88.3	1/6 tr
12/12 Es	1730 WMJW 92.1 PA Nanticoke, r
1922 unID 90.5 MO? semi-cl.	Log total: 418 73's, Dan

NORTHERN FM DX

MARCH 1982

David J. Nieman - 12284 Nice Road - Akron, NY 14001

Except for the January 3 & 4 E-skip, there hasn't been much happening. *ID on tape.

1/1 tr	1/4 tr
2006 WMKY 90.3 KY Morehead, r	420 1030 WKJY 93.9 ?? "KJY Big Band-94"
1/3 MS & Es	(Yes, this is ex-CKLW in Windsor, ON. A
1210 WSSB* 91.9 IL Springfield, c	580 legal ID never gives CKJY or Windsor-RS)
1705 KSUC 88.3 TX Keene, g	1250 1059 WLVB* 93.7 CT Hartford, WBLK off 300
1707 KIKS 93.3 TX Killeen, r	1325 WSTW 93.7 DE Wilmington, r, strong
1723 KAFM 92.5 TX Dallas, r	1200 WBZZ 93.7 PA Pittsburgh, r, not bad
1725 KOKE* 95.5 TX Austin, k	1355 WJFM 93.7 MI Grand Rapids, r, poor
1731 KFAN*101.1 TX Fredericksburg, m	1385 unID 93.7 ?? Two to SW; r & g
1755 KNTU* 88.1 TX Denton, c	1175 1/15 tr
1803 KERA* 90.1 TX Dallas, c, finally!	1300 WGH 97.3 VA Newport News, c 450
1/4 Es	1/21 MS
1210-1250 91.9 is MUF, No IDs	0118 KIZZ* 93.7 ND Minot, r, WBLK off 1130
1/11 tr	1/23 tr
2232 WUFM 100.1 PA Lebanon, r	0206 WOSE* 94.5 OR Port Clinton, k 230
Log total to date: 675	The Best of DX, Dave

John Ebeling - 9209 Vincent Ave. So. - Bloomington, MN 55431
All from Bloomington, MN location. Times are CST. New underlined.

1/1/82 Es	1700 WFLA 93.3 FL Tampa, mor + SCA
	1700 WSCI 89.3 SC Charleston, + SCA with talk, ID
	1700 unID 94.9 ?? ? , r
	1712 WCKX 95.7 FL Clearwater, r, + SCA w/PRN (Q) on it.
	1715 WQXM 97.9 FL Clearwater-St. Petersburg, "98-Rock" ID
	1718 WINK 96.9 FL Ft. Myers, r + SCA w/music, ID
	1718 unID 94.9 ?? Probably WPCB Atlanta, as Athens mentioned.
	1730 WRJA 88.1 SC Sumter, ID
1/3/82 Es	1645 WLWV 94.9 FL Tallahassee, "Love" mor ID
	1648 WCKX 95.7 FL Clearwater, again
	1650 WQXM 97.9 FL Clearwater-St. Petersburg, again
	(At this time, noted Es up to 107.3 MHz)
	1700 WFSU 91.5 FL Tallahassee, ID
	1700 WFLA 93.3 FL Tampa, again
	1702 WBGW 98.9 FL Tallahassee, r, "FM-99," + SCA w/music
	1710 ??? 91.9 AL Birmingham? Could not dig calls out of mess on
	tape. Tornado warnings being given for Chilton, Coosa, Shelby and
	Talladega counties. "Jazz on Sundays" show interrupted for warnings.
	1819 WKTZ 96.1 FL Jacksonville, mor, ID
	1829 WCLK 91.9 GA Atlanta, ID
	1830 WZGC 92.9 GA Atlanta, r, "Z-93"
	1849 WCHY 94.1 GA Savannah, k, "Y-94"

Bob Zent - 1835 Fruit St. - Huntington, IN 46750

1/3 Es	1/3 Es
1737 KIKK 95.7 TX Houston, k	1804 KMFA 89.5 TX Austin, c, ID
	1/4 tr
	1854 WDZZ 92.7 MI Flint, sd, 174
	WADM off, "...Flint area wx.."
1740 KCSWt103.7 TX San Marcos	1/9 tr
	2048 WNES 101.9 KY Central City, 265
	KHCBt105.7 TX Houston, g
	KGOLt107.3 TX Lake Jackson, m
	1744 KVLyt107.9 TX Edinburg, m
	1747 KTSU 90.9 TX Houston, g
	1753 KELT 94.5 TX Harlingen, k, local ad
	KIWW 96.1 TX Harlingen, SS
	1/10 tr
	2003 WWWJ 103.1 OH Johnstown, k, 155
	WHUZ off, "3-WJ"
	(t = tentative)

Short lived opening on January 3 resulted in many tentatives, but few positive log-gings. Thanks to R. Strobel for letting me know about this one. Let's hope '82 turns out to be a better year for Es than the last few years have been. 73s, Bob

Richard Reese - 421 Marion St. - Jersey Shore, PA 17740

12/1 MS		1/1 Es	
1702 WQLT 107.3 AL Florence, nx	720	1815 KWJS 94.9 TX Arlington, g	
12/13 MS		1839 KTEM 93.3 OK Ada, ad	
0905 WMET 95.5 IL Chicago, ID	555	2007 KWKI 93.3 MO Kansas City, g	940
12/16 tr		2010 KLJC 88.5 MO Kansas City, ID	940
1833 WTNJ 105.9 WV Mount Hope, ID	315	2017 KYEZ 93.7 KS Salina, k	1095
12/21 Es		2030 KCEZ 94.9 MO Kansas City, ID	940
1707 KWQA 95.1 MN Worthington, ad	980	1/3 MS	
1708 KMRS 95.7 MN Morris, nx	1005	1232 WQLT 107.3 AL Florence, ID	720
1724 CBON 89.3 ON Thunder Bay, (20) FF	795	1332 WSB 98.5 GA Atlanta, ID	660
12/21 tr		1355 KFTS 94.7 MO Springfield, ID	910
1730 WPTW 95.7 OH Piqua, ad	375	1457 WPCB 94.9 GA Atlanta, nx	660
1/1 Es (106.7 MUF)		1746 KESSt 93.9 TX Fort Worth, SS	1260
1708 WJMJ 94.3 TN Lewisburg, wx	660	1/4 Es (95.7 MUF)	
1709 KYKZ 96.1 LA Lake Charles	1185	1140 WPCS 89.3 FL Pensacola, g	945
1711 WCPC 93.3 MS Houston, k	830	1159 WUWF 88.1 FL Pensacola, ID	945
1714 WKYV 106.7 MS Vicksburg, ID	980	1205 WQUE 93.3 LA New Orleans, r	1075
1717 WZZL 103.5 SC Charleston, ID	610	1/5 Es (95.5 MUF)	
1717 WOKM 103.5 MS New Albany, ID	800	0935 KIVY 92.7 TX Crockett, ad	
1735 KIXS 93.3 TX Killeen, ID		0940 KVTT 91.7 TX Dallas, g	1235
1738 KHOO 99.9 TX Waco, k	1300	0945 KIPR 95.5 TX Diboll, ID	
1740 KNCT 91.3 TX Killeen, m		1/12 Es (88.3 MUF)	
1742 KOKE 95.5 TX Austin, k, "Coke"	1375	2100 WRBH 88.3 LA New Orleans, talk	1075

Quite a bit of off-season Es in January heard this time. Not much tr, due to cold weather here. Looks like Bob Cooper's prediction was right. I wish there could be this much skip every winter. I am looking forward to the next DX season. May it be a great one for everyone. 73's Rich

+ + + + +

Ralph Strobel - 2300 E. McGalliard Rd. - Muncie, IN 47303

1/9 Es WPBT Ch 2 FL Miami, ID, temperature here at the time was -2°	Time 1700	1045
1/18 tr WSWR 100.1 OH Shelby-Willard, k, wx, "FM-100," ID o/WCRD	Time 1230	135
1/24 tr WESN 88.1 IL Bloomington, PSA, weak 120 watts	Time 1158	200
1/25 tr WWIN 88.3 IN Evansville, \$, ID, testing, on air 2/1, c	Time 1757	220
2/3 tr WKOC 88.3 IL Kankakee, Olivet Nazarene College, g, weak, 10 watter #41 heard and taped.	Time 0016	150

Last month I forgot to mention that on 1/1 at 2005, an ID was seen on Channel 4 behind the WPTV-4 Bloomington-Indy picture. The ID said KMOL-4 San Antonio. Below the ID were the words Happy New Year in big letters. I presume this was skip at 1200 miles. I checked Channels 2, 3, and 5, as well as the FM band, but nothing! As soon as KMOL showed the slide, the skip was gone.

It was surprising to hear both WESN and WKOC from IL. I suspect WESN is now 120w and no longer 10w. WKOC is a station I had tried for many times and finally heard at 10 watts. Call letters were given three times as well as talk regarding the Olivet Nazarene College Tigers Basketball team playing Spring Arbor College in the Silverdome at Pontiac, MI on Saturday, February 13th. At the time, Chicago FM's were in very strong. I have written both stations.

WELI, the pirate station here in Muncie, has moved to its fourth location. The new location is close to me. With my antenna pointed S-SW the signal is full strength. The first two locations found WELI on 88.5 MHz, while the third and fourth locations find the signal exactly on 89.0 MHz. The DJ has been broadcasting local FM stations through his equipment. I have heard IDs from all locals through the WELI transmitter. None of the IDs have been counted, nor will I count WELI.

WFBQ, 94.7 in Indianapolis is facing serious consequences. A few months ago, "Q-95" began using the non-ID, "The Kick Ass Rock 'N Roll Station" on the hour. An Indy group known as Decency in Broadcasting reported this to the FCC declaring it obscene. Another charge this group declared was that many of the musical selections aired over WFBQ have lyrics which are "sexually suggestive!" The manager of "Q-95" was right when he said the FCC would not take action against them. However, the "Kick Ass" non-ID is no longer being used. The group taking offense to WFBQ has now taken the case into the Indiana courts hoping to stop this type of broadcasting. An article in the Muncie Evening Press stated that FM stations in Jeffersonville-Louisville, DC, and Houston were also using the "Kick Ass" slogan. Will keep you posted if more develops on this subject.

73. Ralph

+ + + + +

VHF UTILITY DX

Donald L. Blevins
1715 Earhart Road
Baltimore, MD 21221
phone: 301-574-2714

Hank Holbrook 7211 Chestnut Chevy Chase MD 20815

9-14				
2055	WQZ 252	156.80	Rose Haven, MD	Herrington Harbor Marina
	WQZ 252	156.425	Rose Haven, MD	Herrington Harbor Marina
7-12				
1357		157.10	Fortescue, NJ	US Coast Guard
11-16				
1159	WQB 269	161.70	Falls Church, VA	Radio Station WVKX Remote
9-6				
0121	H9MV	157.30	Chesapeake Bay	Bulk Carrier Vessel: Stravroula

Donald L. Blevins 1715 Earhart Road Baltimore, MD 21221

12-19				
1208	KOG 986	39.82	Goodings, ID	Goodings County Sheriff
1208	KOG 907	39.82	Helena, MT	Lewis and Clark County Sheriff
12-26				
1638	KMA 628	39.82	Los Angeles, CA	Los Angeles County Sheriff
12-30				
1157	KKC 475	42.08	Brookhaven, MS	Mississippi Highway Patrol
1219	KCR 935	42.50	San Jose, CA	California Highway Patrol
1223	KMA 501	42.56	Stockton, CA	California Highway Patrol
12-31				
2350	KAA 270	42.06	Poplar Bluff, MO	Missouri Highway Patrol
1-1-82				
1106	KMA 224	39.82	San Rafael, CA	Marin County Sheriff
1107	KMA 224	39.24	San Rafael, CA	Marin County Sheriff
1210	KKC 593	39.50	Alexandria, LA	Louisiana State Police
1212	KKE 681	39.50	Ville Platte, LA	Evangeline Parish Sheriff
1216	KKI 574	39.50	Abbeville, LA	Vermillion Parish Sheriff
1223	KKC 592	39.50	Lake Charles, LA	Louisiana State Police
1234	KMA 628	39.64	Los Angeles, CA	Los Angeles County Sheriff
1242	KKC 995	39.50	Leesville, LA	Louisiana State Police
1247	KMA 628	39.36	Los Angeles, CA	Los Angeles County Sheriff
1250	KMA 628	39.20	Los Angeles, CA	Los Angeles County Sheriff
1318	KKC 720	39.30	Shreveport, LA	Louisiana State Police
1323	KMA 448	42.12	Sacramento, CA	California Highway Patrol
1359	KKC 973	42.12	Starkesville, MS	Mississippi Highway Patrol
1408	KMD 950	42.08	Fresno, CA	California Highway Patrol
1413	KDY 372	37.26	Lafayette, TN	Macon County Sheriff
1414	KFX 279	37.26	Lebanon, TN	Wilson County Sheriff
1416	KIF 668	37.26	Clarkesville, TN	Montgomery County Sheriff
1433	KFD 497	37.26	Portland, TN	Portland Police
1455	KMA 628	39.14	Los Angeles, CA	Los Angeles County Sheriff
1455	KMA 628	39.76	Los Angeles, CA	Los Angeles County Sheriff
1455	KMA 628	39.94	Los Angeles, CA	Los Angeles County Sheriff
1503	KIH 982	37.26	Carthage, TN	Smith County Sheriff
1512	KRO 293	37.24	Lewisville, AR	Lewisville Police
1516	KKC 230	44.62	Hope, AR	Arkansas State Police
1520	KKL 543	37.26	Gilmer, TX	Gilmer Police
1521	KKC 232	44.74	Forrest City, AR	Arkansas State Police
1545	KSL 427	37.24	De Queen, AR	Sevier County Sheriff
1600	KSV 870	37.24	Nashville, AR	Howard County Sheriff
1600	KSZ 518	37.24	Lewisville, AR	Lafayette County Sheriff
1601	KRZ 258	37.24	Hope, AR	Hempstead County Sheriff

1-1-82					
1628	KKC 929	42.12	Jackson, MS	Mississippi Highway Patrol	
1736	KKC 659	37.24	Texarkana, AR	Texarkana Police	
1739	KKC 227	44.62	Little Rock, AR	Arkansas State Police	
1740	KUU 319	37.24	Little Rock, AR	Little Rock Police	
1740	KEB 237	37.04	Mineola, NY	Nassau County Police	
1808	KKC 374	37.26	Oklahoma City, OK	Oklahoma County Sheriff	
1837	KAA 522	42.06	Willow Springs, MO	Missouri Highway Patrol	
1846	KKC 881	44.70	Pawnee, OK	Oklahoma Highway Patrol	
1849	KKY 345	44.70	Bartlesville, OK	Oklahoma Highway Patrol	
1850	KKC 884	44.70	Antlers, OK	Oklahoma Highway Patrol	
1853	KAB 675	42.12	Sikeston, MO	Missouri Highway Patrol	
1854	KAB 435	42.54	Rochester, MN	Minnesota State Patrol	
1854	KAB 302	42.12	Jefferson City, MO	Missouri Highway Patrol	
1858	KSB 234	42.50	Du Quion, IL	Illinois State Police	
1917	KSB 230	42.60	Joliet, IL	Illinois State Police	
1927	KSB 947	42.44	Rockford, IL	Illinois State Police	
1927	KSA 775	42.60	Macomb, IL	Illinois State Police	
1935	KAA 202	42.38	Lees Summit, MO	Missouri Highway Patrol	
1936	KSB 228	42.36	Metamora, IL	Illinois State Police	
1939	KSR 937	42.38	Kirkwood, MO	Missouri Highway Patrol	
1949	KAB 430	42.46	Grand Island, NE	Nebraska State Patrol	
1949	KAB 308	42.46	Lincoln, NE	Nebraska State Patrol	
1955	KSA 774	42.46	Sterling, IL	Illinois State Police	
2358	KSB 242	42.56	Chicago, IL	Illinois State Police	
1-2-82					
0004	KAD 848	42.46	St. Paul, MN	Minnesota State Patrol	
0015	KAB 309	42.46	Ohmaha, NE	Nebraska State Patrol	
0048	KAA 201	42.06	Macon, MO	Missouri Highway Patrol	
0052	KBF 379	39.58	Hutchinson, KS	Reno County Sheriff	
1100	KME 311	33.92	Sunol Ridge, CA	Alameda County Fire	
1145	KJY 911	42.12	Sunol, CA	California Highway Patrol	
1145	KMA 602	42.12	Los Angeles, CA	California Highway Patrol	
1-3-82					
1121	KFA 409	42.50	Bakersfield, CA	California Highway Patrol	
1122	KMD 604	42.44	Los Angeles, CA	California Highway Patrol	
1125	KYT 214	39.82	Cut Bank, MT	Glacier County Sheriff	
1130	KMG 903	42.56	Rodman Mountain, CA	California Highway Patrol	
1137	KRC 954	42.54	Garberville, CA	California Highway Patrol	
1144	KMA 428	45.14	San Francisco, CA	San Francisco Police	
1148	KMJ 521	45.70	Dulzura, CA	San Diego County Sheriff	
1150	KMA 428	45.10	San Francisco, CA	San Francisco Police	
1158	KOH 420	42.88	Reno, NV	Nevada Highway Patrol	
1226	KOA 382	42.86	Pendelton, OR	Oregon State Police	
1241	KMA 628	39.88	Los Angeles, CA	California Highway Patrol	
1334	KIZ 227	42.94	Lovelock, NV	Nevada Highway Patrol	
1345	KSZ 776	39.18	Sedonia, AZ	Coconino County Sheriff	
1350	KOA 745	42.92	Portland, OR	Oregon State Police	
1354	KOA 629	39.18	Globe, AZ	Gila County Sheriff	
1508	KAA 243	42.06	Springfield, MO	Missouri Highway Patrol	
1-9-82					
1247	KOA 722	39.82	Missoula, MT	Missoula County Sheriff	
1-10-82					
1240	KMA 962	42.08	San Francisco, CA	California Highway Patrol	
1307	KLM 631	39.18	Hayden, AZ	Gila County Sheriff	
1308	KFF 269	39.24	Larkspur, CA	Larkspur Police	
1309	KMA 628	39.64	Los Angeles, CA	Los Angeles County Sheriff	
1312	KMA 628	39.48	Los Angeles, CA	Los Angeles County Sheriff	
1317	KCR 920	39.68	Avalon, CA	Los Angeles County Sheriff	

NORTH CAROLINA

Concord YJ
 Durham YL YR
 Fayetteville JL YL YK YS
 YR
 Goldsboro JS JK
 Greensboro JL
 Greenville YK JK
 Harmony YP
 Hickory YL JS YR
 Jacksonville JP YP
 Kinston YJ JS
 Marshville JR
 Mount Airy YS YR
 New Bern JL
 North Wilkesboro JP
 Raleigh YP YJ YR
 Rocky Mount JL YL JP JR
 Roxboro JS
 Salisbury JR
 Sanford YK
 Southern Pines YJ
 Wilmington YJ
 Winston-Salem YJ

NORTH DAKOTA

Bismark YJ YR
 Cavalier YK YR
 Colfax YP JK
 Columbus YL
 Epping JS
 Fargo JS YR
 Hazen YL
 Keene JL
 Minot YJ YK JS YS YR
 Mohall JL JK
 Park River JL JP YP JS
 Parshall JL JP
 Roseglen YP
 Tioga YJ
 Williston YJ

OHIO

Akron YS ZR QA
 Ashtabula JK
 Bellefontaine YJ
 Canton JL YK
 Chillicothe YK
 Cincinnati JL YP YR ZA
 Cleveland JL JP YJ JS YR
 ZA QJ
 Columbus JL YJ ZA
 Dayton JP JS JK
 Elyria YK
 Hudson YP
 Lima ZA
 Lorain JR ZA ZR

OHIO

Marion YL YR
 Medina YL
 Middletown YL
 Springfield YP
 Steubenville ZR
 Toledo JP YK JS
 Youngstown YJ

OKLAHOMA

Ada JP
 Altus YS
 Alva YS
 Ardmore JL YJ
 Atoka YK
 Bartelsville YK
 Broken Bow YL
 Burns Flat JS
 Capron JP
 Cresent QY
 Davenport YL
 Duncan YK
 Elk City JP
 Enid JL YL YK
 YR JK JR

Eufala YP
 Guymon JP JR
 Hennessey JP QB
 Hugo YJ
 Keystone YL
 Kingfisher JS QA
 Lawton YJ
 Lindsay JS
 Manchester JS
 Mc Alester YJ

Muskogee JP
 Oklahoma City JL
 JK YR QD YJ YS
 QJ QR QF JR QC
 QE QP

Ponca City YJ
 Poteau YS
 Roosevelt JR
 Seiling JS
 Shawnee YK
 Stillwater YP
 Stilwell JS
 Talihina JL
 Tulsa JL YJ JS JK

YS YR YK JR QJ QC
 Valiant JR
 Vinita YP
 Warner YL
 Watonga YP QO
 Weatherford JK
 Woodward YL YJ

OREGON

Albany JS
 Arlington JP
 Astoria JP

OREGON

Baker YP
 Bend YJ ZO
 Blue River JP
 Boardman JR
 Burns JK
 Colton YR QJ
 Coos Bay YL YR
 Detroit YL

Esacada JR QC QP
 Eugene JL YJ YK ZO
 Florence YP
 Glide JS ZY
 Grants Pass JP
 Hood River YP YS
 Klamath Falls YP

La Grande JP
 Lebanon YS
 Lincoln City JR
 Lyons ZY
 Medford JL YJ
 Mount Vernon JR
 Newport JP

Pendelton YJ
 Philomath JK
 Pilot Rock YR
 Portland JL YL YJ YK
 JS ZO QB QR QF

Redmond JR
 Roseburg YJ ZO
 Salem JP YP Z)
 QK Sunnyside QA
 The Dalles YJ

PENNSYLVANIA

Allentown JP YK YS JR
 Bellefonte YK
 Birdsboro QC QK
 Butler YS
 Chambersburg YS
 Connelville YS
 Donora YL

Ephrata YK
 Erie YJ YS
 Export JP
 Forest City JR
 Galilee YS
 Gibsonia YK
 Greensburg JR

Hanover YP
 Harrisburg JL YL YJ
 JS YR JR
 Hazelton YL YR
 Indiana YP
 Johnston JS
 Kittaning JK
 Lancaster JP

Meadville JP
 Oil City YR
 Palmerton JS

PENNSYLVANIA

Philadelphia JL YL YJ
 JS YR JR ZR QJ QD QE QP
 QB QC QF
 Pittsburg JL YJ JS YR
 ZA ZL QC QJ QD QE
 Reading YP
 Rochester JR
 Uniontown ZR
 Washington YP
 Wilkes-Barre-Scranton
 YP YJ JK
 Williamsport JP
 Yellow House QA
 York JK

SOUTH CAROLINA

Charleston YJ YS
 Chesnee YP
 Columbia JL YP YR
 Florence JL
 Greenville JL JP YK YR
 Greenwood YL YJ YS
 Inman JK
 Iva YP
 Kingstree JP
 Lancaster JS
 Lexington YK
 Moncks Corner YP
 North JP
 Pelion JK
 Ridge Spring JS
 Rock Hill JP
 Scranton YK
 Spartanburg JS JR
 Sumter YL YJ
 Walterboro YS
 Williston YJ JR

SOUTH DAKOTA

Bereford YK
 Brookings JS
 Dell Rapids JR
 Rapid City YJ YR
 Sioux Falls YJ YR

TENNESSEE

Bristol YJ
 Chattanooga JL YJ JR
 QC QA QE QK
 Clarksville YS
 Collingston JR
 Columbia YP
 Cookeville QD QC
 Dyersburg JL
 Greeneville YL
 Jackson YL
 Johnson City YS
 Kingsport JR
 Knoxville JR

TENNESSEE

Lafayette YR
 Memphis JL YP YJ YS QA
 QE QP QK QR QY
 Millington JP
 Morristown JK
 Nashville JL JP YJ JS JK
 JR QC QA QE QY
 QK QR
 Onieda YL YR
 Pikeville JP
 Smithfield YK
 Tallahoma YR
 Woodbury YS

TEXAS

Abilene JL YJ YK JR
 Alice YL YK JS
 Alpine ZL
 Amarillo JP YS JK
 Athens YR
 Austin JL YL YJ YR
 Bay City JL YJ
 Baytown JS
 Beaumont YL YJ YS
 Beeville JP
 Big Spring YJ YR
 Brownfield JL YK
 Brownwood YP YS
 Bryan JL JS
 Bullard JL
 Canadian YK
 Charlie JP
 Cisco JP
 Cleveland YK
 Clifton JS
 Colorado City YR
 Columbus YP
 Commerce YL
 Corpus Christi JL YP
 YJ YS YR YR JK JR
 Corsicana YK
 Crockett JK
 Cuervo YJ
 Dahart YJ JK
 Dallas JL YJ JS YR QJ
 QE QB QK QR QY QF
 Decatur JS
 Del Rio YK JK
 Denison YS
 Denton YP YS
 Dimmitt YL
 Dumas YS
 El Campo JS
 El Paso JL YK YR YK JR
 Encino YP
 Fairfield JR
 Flatonka YK
 Floresville JR
 Fort Stockton YK
 Fort Worth YL YK QE QK
 QB QC
 Freeport YP

TEXAS

Gainesville JK
 Galveston YL YJ
 Ganado JK
 Gilmer YS
 Graham YP
 Greenville YK
 Harlingen YJ YR
 Hebronville JL
 Hemphill JR
 Hempstead JP
 Henderson JP
 Houston JL YJ YS YR QF
 QJ QD QA QE QF QB QR
 Hub YK
 Hull-Daisetta JR
 Huntsville YJ
 Irving QD QK
 Jewett YP
 Karnes City YK
 Katy JR
 Kerrville YK JK
 Kilgore JL YL JK
 Killeen JK
 Kingsland YL JR
 Kirbyville YK
 Lake Dallas JP
 Lamesa JS
 Laredo YK JS YR
 La Sara JL
 Lazzbuddie YP YS
 Levelland JP YR
 Liberty YP
 Littlefield JL
 Livingstone YK JS
 Longview YK JS
 Lubbock YJ JR
 Lufkin JL YR
 Madisonville YK
 Maple JK
 McAllen JP YS JR
 McCarmey YP JS
 Midland YL YK YS YR
 Milo Center QJ QK
 Mission YK
 Monahans YR
 Mount Pleasant YJ
 Muenster JR
 Novasta YL
 Nocona YS
 Odell YL
 Odessa JL JP YJ JS
 Ozona YR
 Palestine JS
 Pearshall JP JK
 Pecos YL JK
 Perryton JL YR
 Plains YS
 Plainview YK
 Pleasonton YS
 Fort Lavaco YP
 Punkin Center YP
 Quanah JK
 Ralls YS

TEXAS

Ranger YJ
 Refugio JS
 Rosebud JP
 Rosenberg YK
 San Angelo YL YP JS JK
 San Antonio JL YL YP YJ
 JS YR
 San Marcos YR JK
 Santa Anna YS
 Sequin JP
 Seminole YR
 Silsbee JP
 Skellytown YJ
 Snyder YJ YR
 Sonora YJ JR
 Spearman YP
 Stamford YP
 Stillman JS JK
 Stratford YL
 Sulphur Springs JK
 Sweeny JP
 Sweetwater JS
 Temple YK
 Texarkana JP YP YK YR
 Tulia YR
 Tyler YP YJ
 Uvalde YJ
 Vega JL
 Victoria YL JP YK
 Waco YJ
 Waxahachie YP
 Westway-Herford YJ JS
 Wichita Falls JL YJ YR
 Winnie JK
 Woodville YJ

UTAH

Moab JL JK
 Neola YL YP YK JR
 Ogden YL YK
 Price YR
 Provo YP
 Salt Lake City JL JP YJ
 JS YR JR

Tabiona YP YS
 Vernal JP YJ JS
 Wendover JR

VERMONT

Burlington JP
 Ludlow JK
 Springfield JR

VIRGINIA

Amherst JL
 Charlottesville JS YS
 Edinburg JL
 Gum Tree YR
 Harrisonburg YJ
 Haymarket JP
 Kilmarnock YK
 Lynchburg JP JK
 Manassas YK

VIRGINIA

Martinsville YL YP YK
 Newport News JP YR JK
 Norfolk JL YL YP YK JS
 JK JR
 Richmond JL YL YP YJ JR
 Roanoke YJ JR
 Warsaw JK
 Waynesboro YL

WASHINGTON

Aberdeen JK
 Bellingham ZO
 Centralia ZO
 Cle Elum YL
 Clewiche JS
 Eatonville Q5
 Ellensburg JP YP
 Ephrata YS
 Everett JS JK
 Forks JP JR
 Halls Lake QJ
 Kalama YS JK
 Kirkland QB QC
 Langley ZY ZL
 Long Beach YK
 Lynden YL
 Morton YR
 Moses Lake YJ
 Mt. Vernon YP
 Naselle JL
 North Bend YK
 Okanogan YR
 Olympia JS
 Othello JL
 Packwood YJ
 Poulso YR
 St. John JP
 Seattle JL YL YS JR
 ZO QC QA
 Spokane JL YJ
 Sunnyside JK
 Tacoma JP YP
 Uniontown JK
 Walla Walla YK
 Wenatchee JK
 Yakima YK

WEST VIRGINIA

Charleston YL YJ YS JR
 Hamlin YP
 Harrisville YK
 Parsons JS

WISCONSIN

Alamena YK
 Antigo JK
 Appleton JK JR
 Aurora JP
 Baraboo YP
 Black River Falls JL
 Cameron YJ
 Clintonville JL
 Delafield JS
 Dodgeville YR

WISCONSIN

Eau Claire JP
 Falun JL
 Fond du Lac YR
 Green Bay JP YJ
 Hager City JL YL
 Independence YS
 Janesville JR
 La Crosse JP YK
 Lake Geneva YK
 Madison YL YJ
 Manitowic YL
 Marshfield YL
 Medford JS
 Milwaukee JL YL JP
 YP YJ YS JK
 QJ QE QR
 Monroe JL QP
 Oshkosh YJ
 Parkside-Racine JR
 Platteville YS
 Plymouth YK
 Portage YK
 Rhinelander YS YR
 Rice Lake JR
 Ripon YS
 Sand Creek YR
 Sheyboygan YJ
 Sparta JK
 Stevens Point
 Tomah JP
 Two Rivers JS
 Verona JP JS
 Waukesha YR
 Wausau JP YK
 Wausaukee JL
 West Bend JR
 Westby JS
 Wisconsin Rapids YJ

WYOMING

Baggs YK
 Casper YL JP YJ YK
 YR JR
 Cheyenne JS
 Cody YK
 Gillette YL YP YK YS JK
 Mountain View JP
 Newcastle JK
 Pinedale YL YP YK JK
 Rawlins YK
 Riverton YP YS
 Rock Springs YJ JS YR
 Worland YL YK

EASTERN TV-DX

William J. Draeb
Ellis St. R.R.#2
Kewanee, WI
54216

Eastern TV-DX

March 1982

March 1982

Deadline: 1st

Steve Sprachman: 3939 Eve Drive, Seaford, NY 11783

"1981 is finally over. DXwise, it started slow and ended slow. But, in between 13 new additions to my list, 4 brand new stations, dozens of updated or new TV Guides and a great many relogs. 1981 is rated as "o.k.". Hopefully, 1982 will provide more of the same. Several new stations, hopefully, will be going on in 1982. And 1982 will probably be the last year with the LPTV's. The new TV Factbook (1981-1982) has a list of the applications. (What does the one in Minnesota show? It's supposed to have gone on the air in December). I'm sure the FCC will botch this up. If I was making the rules, these would be some of them for LPTV's:

- 1.- A company or individual can not own more than 7. (how did you arrive at that number?-wd)
- 2.- Only 2 can be owned in the same market and can not cover the same area.
- 3.- STV would be allowed only in areas where STV is not received by a full power station. If one goes on after the LPTV is in operation, the LPTV must drop STV.
- 4.- Areas with less than 4 stations received would be given priority and locally owned companies will be given priority.
- 5.- In metropolitan areas the format must be stipulated in the license. (b.) No more than 3 LPTV stations can cover a specific area. (c.) Share-timing would be allowed.
- 6.- LPTV channels be allocated with an emphasis on rural areas. Repeaters of an LPTV would only be allowed in rural areas. In metropolitan areas, the 70's (ch.70-83) should be used for LPTV's to avoid interference. (This would cause the mobile communications to be put some where else. What "mobile communications uses those frequencies?" (I don't think there are too many stations using this frequency range yet; it's going to be used eventually, when all the lower mobile radio frequencies are taken. In some areas, I assume, it will be quite a while, if ever, before there are stations on in this frequency range.)
- 7.- Local programming would be encouraged. A minimum of 2 hours a day must be locally originated -- 15 minutes must be some type of news and public affairs show and must be shown between the hours of 5 and 11 p.m. local time.

It's unfortunate that once the FCC opens the "flood gate" and the LPTV's go on the air that most will be repeaters of stations or satellite services. This would defeat the idea of locally owned and operated stations for the good of local people. The FCC will go where the money is.

There really isn't much to report. Things have been slow. There were a couple of days of tropo and on Nov. 29, Dec. 12, and Jan. 7, Es was noted but nothing was I.D. ed.

I found myself visiting friends in Hammonton, NJ for New Years. I got a chance to play with the TV. Of special interest was the programming of WWSG-57 Philadelphia and WRBV-65 Vineland. WWSG-57 showed a play on Mark Twain all day, over and over again until 6 p.m. Then they had a show taped from CNN Cable News Network on 1-1-82. On Saturday, they had local preachers on the CNN program. STV with SelectTV in evening. WRBV-65 had STV in the morning, cartoons at noon and then an I.D. slide from 1 p.m. to 7:30 p.m., when the STV started, on 1-1-82. WAAT-40 Wildwood's signal was received, and it was much improved. WWAC-53 at 30 miles was very snowy.

Well, that's about it for now. I'm looking forward to the best DX season yet in 1982 and I hope it is for everyone else.

P.S.- Let's hope that Decembers' VUD comes before January's. (I don't think you have to worry about that but I hope the January VUD isn't screwed up like the December issue with some of the pages missing.-wd)

Greg Kelley: 211 St. Clair Ave. SW., New Philadelphia, OH 44663 EST

December 1981

30 Es 2300 Es
WLBZ-2 ME
CKCW-2 NB
Moncton
CBMT-3 NS
Halifax
CHSJ-4 NB
St. John

"Other than Es, there is little of DXing to report. I was given 20' of tower for xmas and makes me 36' total, so perhaps install tower in spring. Brought myself a Sharp 5" TV with ac/dc and been enjoying trying out reception on some of the hills around here. Discovered WBOY-12, WTJ-10, plus Pittsburgh V's nearly snow free. My new job is going strong and was promoted to assistant manager several weeks before xmas. Also saw ad for jobs at new tv station in Canton, WAKC; so, I assume thats ch. 67. Guess they will be on air before long."

Harry J. Hayes: 9 Henry St., Wilkes-Barre, PA 18702 EDT-EST

Equipment: RCA Chromacolor w/6' dish in attic, FM ant. for VHF.

October 1981

14 Tr 0730 WSEE-35 PA
WFNJ-21 OH
WJET-24 PA
0731 WTTV-33 OH
0735 WCLQ-61 OH

November 1981

29 Es 1750-1900 Unidseds S&SW
December 1981
12 F2 1105-1215 ch. E-3 unidseds to SE.

January 1982

1 Es 1810 KQTV-2 MO
1900 WCIA-3 IL
Champaign
1930 KQMS-6 MO
4 Es 1202 KTES-3 LA

"No actual I.D.'s were seen on any of the 10-14 loggings except WSEE, but direction on dish and network matchup make those listed a pretty sure bet. The 12-12 F2 was E-3 unidseds since they caused offsets against WOCBS. They were not slop over as I've observed on previous occasions. WOCBS was at times completely wiped out w/the strong signals. At times unidentifiable images appeared that were badly smeared and flipped rapidly. I was in touch with Jerry Pulice, indirectly through Glenn Jacobs who said he was seeing Ireland on one of the lower channels."

Robert Grant: 5775 Bishop, Detroit, MI 48224 Ka8P??, (313) 884-3025 CDT(EST)

November 1981

13 Tr 2100 WJFC-26 OH
Springfield
CICO33-33 ON
and many other Ontario
phantom translators.
2200 WCFC-38 IL
2235 WIPB-49 IN
Muncie #253
(UMF #100)

November 1981

13 Tr 2330 W67AJ MI
14 Tr 0100 WIMS-40 IN
Indianapolis
December 1981
12 Es 1830 KARD-3 KS
KCKT-2 KS
1958 KATC-3 LA
2000 KTES-3 LA

January 1982

1 Es 1752 KATC-3 LA
1833 WKAB-2 MS
Ackerman
3 Es 1810 KKAS-5 TX
1930 KFDX-3 TX
4 Es 0635 Canadian unidseds on chs.2-6.
13 Gw 1654 WOCBS-2 NY
(seen via WJFK)

"Equipment is rabbit ears and '59 Zenith. V-90 still not reinstalled. (Would you go up on a roof with a -30 wind chill factor?) (No thanks, but I did go out side on 1-10 to tie down some loose RG-8 coax when the wind chill was -70. I was out there about five minutes and my face was numb and the coax was pretty stiff too.-wd). November umf DX on a '79 Sears.

I hope to have my novice ham license soon. I was ready for the exam back in 1980 but then Es came in like gangbusters & I lost interest in ham.

The 1-4 Es had a bizzare effect in that it first died out on ch.2 at 0705 or so. Then ch.3, then 4 and finally ch.5 at 1000 or so. I suspect that this opening just "left" me rather than dying out. This might have been a highband opening somewhere.

I have documented a bonanza of phantom xltrs in southwestern Ontario. Since explanation requires a 2 color chart it cannot appear in the VUD. The phantoms are caused by TV Ontario and the CILFT repeater system. Report to CCI!"

William R. Hepburn: 5659 Highland Ave., Niagara Falls, ON L2G 4X2 EST

"This is my last TV-DX report from Niagara Falls as I'll be moving to Cornwall on Jan. 10. My totals ended at 239 from 6 prov., 28 states, Cuba, Mexico, N. Ireland, France & Wales. I finally got my first F2 DX during December with video on ch.2 on the 7th with no sync whatsoever. Otherwise, only audio received. One identifiable Es opening on the 12th. Now on to the DX:"

December 1981

2 Es 0144 bursts on ch.2.

3 Es 2154 MUF ch.3 weak
4 Es 2203 " " " "

5 Es 2149 MUF ch.4
6 Es 2101 " ch.3

Eastern TV-DX William K. Hepburn; continued--- **March 1982**

December 1981	December 1981	December 1981
7 F2 1055 unided ch.I-B under WGR from NE. 1106 BSC-1 B-1 N.Ireland Belfast; audio only 3840 mi. TF-1 F-2 France Troves audio only 4890 mi.	11 F2 0821 TF-1 F-2 FR 4890 0933 unided ch. I-B or E-3 under WGR BSC-1 B-1 Wales Cardiff 4230 welsh audio. 12 F2 0933 BSC-1 B-1 EN t TF-1 F-2 FR 4890	13 F2 1055 BSC-1 B-1 TF-1 F-2 FR Es 2250 MUF-2 14 F2 1039 BSC-1 B-1 TF-1 F-2 FR 15 F2 0936 " " 0938 BSC-1 B-1 ND 1024 " " ML 16 F2 1138 TF-1 F-2 FR Es 1203 Unided PBS ch.2 West MUF-2 17 F2 1211 BSC-1 B-1 ND 21 Es 1719 MUF-3 30 Es 1216 MUF-4
8 F2 0801 BSC-1 B-1 ND 3840 TF-1 F-2 FR 4890	0954 BSC-1 B-1 ND t Es 1659 KARO-3 KS 1045 1728 KCKT-2 KS 950 1803 KTVG-6 KS t 1914 KTVV-4 OK 1045 1926 KYTV-3 MO 955 1939 KOBT-3 OK 1045 2003 KTBK-3 LA t	
9 F2 1022 TF-1 F-2 FR t		
10 F2 1146 TF-1 F-2 FR 4890 BSC-1 B-1 ND 3840 1159 u/B-1 u/BSC-1 ND		
11 F2 0810 BSC-1 B-1 ND 3840 (tt/tp 0911-1020)		

George Rogers; 320 Lafayette Road, Chickamauga, GA 30707 EST

"Here is my first 1982 report for the Eastern TV-DX column. Equipment: RCA 12" portable model no. AFR-246W."

November 1981	December 1981	January 1982
29 Es 1900 CKPR-2 ON 1348 WAY-2 WI 799 2155 XHRIO-2 Tam 1265	12 Es 1645 KTCB-2 MN 1008 1740 KGFE-2 ND 1359 1815 CKOS-5 SK 1773 KXJB-4 ND 1339 19 F2 1055 TVF-1 FR 41.25 BSC-1 GB 41.50 Es 1755 XH1-2 Son 1900 Ciudad Obregon 24 Es 1630 KWSN-2 CO 1317 1715 KCKT-2 KS 984 KAAA-5 CO 1259 1725 KTVG-6 KS 1024 31 Es 2030 WPBT-2 FL 776 2350 XEPE-2 Tam 1095 2352 XHRIO-2 " 1265	2 F2 1045 BSC-1 GB 41.50 TVF-1 FR 41.25 3 Es 1000 KNID-2 TX 1123 Tr 1005 WRBL-3 (WRCB off) Es 1700 KOA-4 CO 1317 KWSN-2 CO " " 1705 KPRY-4 SD 1330 KUSD-2 SD 1106 1711 KPLO-6 SD 1350 1720 WOVW-6 NE 987 1745 KXON-5 SD 1160 1900 KTCB-2 MN 1008 1905 WCCO-4 MN " " 1910 KSTP-5 MN " " KXJB-4 ND 1339 5 F2 1045 TVF-1 FR 41.25 BSC-1 GB 41.50 8 Es 0845 KDIX-2 ND 1574 0902 KGFE-2 ND 1359 0904 KXJB-4 ND 1339 0912 WDAY-6 ND 1233 1720 KWSN-2 CO 1317 10 Es 1010 XEW-2 DF 1850 1620 KWGN-2 CO 1317 KCKT-2 KS 984
December 1981	January 1982	
1 Tr 1450 WJSP-28 GA 208 1455 WMAA-40 AL 130 2 F2 1120 BSC-1 41.50 1125 TVF-1 41.25 5 Es 2135 CJFE-5 SK 1948 Swift Current 6 Tr 1000 WLTZ-17 TN 129 1020 WLTZ-38 GA 221 1055 WSLA-8 AL 231 1100 WALA-10 AL 386 1700 WSTV-30 GA 111 8 Tr 0815 WPSD-6 KY 277 Es 2045 XEPM-2 CH 1430 KDCE-4 TX 1425 2057 KNID-2 TX 1123 9 F2 1105 TVF-1 41.25 BSC-1 41.50 11 Es 2255 XHRIO-2 Tam 1265 KOBP-4 TX 1250 12 Es 1525 XNOP-2 NE 1180 KDUR-4 NE 1388 1530 KTIW-2 WY 1574 1555 KDLO-3 SD 1240 1600 KMLE-3 NE 1170 1605 KDIX-2 ND 1585 KUSD-2 SD 1106 1625 CKPR-2 ON 1348	1 Es 1113 XEPM-2 CH 1430 1115 KDCE-4 TX 1425 1118 XEJ-5 CH 1430 1134 KNID-2 TX 1123 1700 KENTW-3 NM 1158 1738 KUSD-2 SD 1106 1802 KWBT-2 CO 1317 1810 WOI-5 IA 366 1812 KXON-5 SD 1160 1820 KTCB-2 MN 1008 1822 KTIW-4 LA 1095 1845 KANR-4 TX 1036 KOB-4 NM 1320 KKT-5 TX 1116 KINR-5 NM 1320	

lots a DX fun for you!"

Robert Goodman; 2030 Hering Ave., Bronx, NY 10461 EDT

"I know this report is old, but it's short."

August 1981	August 1981
6 Es 1723 WSD-2 GA 1730 WDUJ-3 FL + unideds	23 Tr 0558 WNEH-25 MA Boston 0605 WBRB-28 Pa Wilkes-Barre

0705 WJLA-44 PA
Scranton

"Just a little winter E-skip a few times starting 11/29, no I.D.'s."

David Brumfield; 1618 Chester Blvd., Richmond, IN 47374 EST

September 1981	September 1981	September 1981
8 Tr 0100 WBRM-2 IL 205	9 Tr 0200 WNGE-2 TN 280	9 Tr 0200 WIVF-5 TN 280

Eastern TV-DX David Brumfield; continued--- **March 1982**

September 1981	October 1981	November 1981
9 Tr WPTT-22 PA 25502000 10 Tr 2330 WAFF-48 AL 325 2333 WZTV-17 TN 280 11 Tr 0900 WKZT-23 KY 165 1000 WKMR-38 KY 135 1100 WKGB-53 KY 215 24 Tr 0119 KPVS-12 MO 320 0131 WHNT-19 AL 395 0134 WSAT-3 WV 175 0138 WJBK-2 MI 200 25 Tr 1540 WHIZ-18 OH 152 1830 WDHO-24 OH 140 1900 WUAB-4 OH 185 29 Tr 2200 WKSO-29 KY 200 2230 WKON-52 KY 88 30 Tr 0032 WICS-20 IL 260 0106 WKYH-57 KY 210	16 Tr 1300 WKAS-25 KY 155 27 Tr 2334 WKMJ-68 KY 125 28 Tr 0000 WHBT-31 MI 175 WKBD-50 MI 200 0100 WGPR-62 MI " 0205 WTVG-13 OH 140 0214 WEWS-5 OH 200 0225 WJIM-6 MI " 0245 WDTV-5 WV 235 0315 WKYD-7 MI 260 0323 WJKW-8 OH " 0402 WDIV-4 MI " 1130 WOUB-20 OH 165 29 Tr 2300 WICD-15 IL 170 2330 WNIH-34 IN 145 30 Tr 0000 WNEO-45 OH 200 0030 WTVS-56 MI "	13 Tr 0016 CICO-59 ON 230 0116 WKEV-27 OH 235 0120 WYTV-33 OH " 0128 CBLFT-25 ON 395 0131 CFMT-47 ON " 0137 CFPL-10 ON 290 0158 WEYI-25 MI 260 0200 WCFC-38 IL 205 0201 WPGE-53 PA 255 0230 WJRT-12 MI 230 0300 WMAQ-5 IL 205 WGN-9 IL " WISN-12 WI 280 0307 CFTO-9 ON 395 0330 CKGW-22 ON 415 CKGH-6 ON 335 0335 CRCH-11 ON 355 1101 WKMA-35 KY 225 14 Tr 0100 WGSN-44 IL 205 WFLD-32 IL "
October 1981	November 1981	December 1981
6 Tr 1000 WVIZ-25 OH 200 9 Tr 1100 WLTZ-61 OH " 1244 WGTB-30 OH 140 1250 WCMH-4 OH 105 1256 WTOL-11 OH 140	12 Tr 1400 WXON-20 MI " 2200 WGTU-29 MI 345 2350 CKCO-42 ON 240 13 Tr 0000 CKGN-29 ON 250 0014 CBLFT-40 ON 290 0016 CICO-28 ON 350 CBLFT-48 ON 230	12 Tr 0000 WKAR-23 MI 200 0100 WIOF-17 OH 195 0200 WILX-10 MI 200 0202 WOTV-8 MI 225 0212 WKYC-3 OH 200

Total: 132; WHF 44, UHF 88. (All stations in report are new-wd) Equipment: G.E., Sears & Wards 19" color sets. WHF: C.M. 3612 UHF: Si?re plate Pre-amp: C.M. 0263. "This is my first serious venture into TV DXing and I like it! Having done o.k. in Muncie on the FM band I encouraged my dad to upgrade some equipment. So far, its given good results. The opening to ON was really something. Hope to add FM logging again as Richmond is up higher than Muncie."

William J. Draeb; Ellis St., R.R.#2, Kewanee, WI 53121 CST

January 1982	January 1982	January 1982
1 Es 1640 WESH-2 FL 1130 WEAR-3 FL 986 WTVY-4 AL 934 1653 WDUJ-3 FL 1175 Tr 1902 KDWL-30 MO 432 Es 1906 WCBD-2 SC 916 WCIV-4 SC " WCSG-5 SC " 2018 KTVX-4 UT 1264 KUTV-2 UT " 2 Es 0021 WESH-2 FL t 1952 KHOL-4 TX t KENS-5 TX t 2004 KHAB-4 TX t 2006 KNID-2 TX t 3 Es 0758 Unideds 2&3 Tr 1221 KDWL-30 MO 432 1233 KAVT-15 MN 288 Es 1615 WERZ-2 LA 1002 WHL-4 LA " 1822 WDSU-6 LA "	4 Es 0653 CFRN-3 AT 1320 0659 CTEL-4 AT 1175 0705 Unideds ch. 6. 0710 CKBI-5 SK t 0713 CKBI-4 SK t 5 Tr 1929 KDWL-30 MO 432 WKLE-46 KY 473 1938 WCET-48 OH 400 1956 WTVV-36 KY 473 8 Es 0742 WJKT-4 FL t WEAR-3 FL 986 WESH-2 FL 1130 WHL-4 LA 1002 0755 WTVV-4 AL 934 PES ch.2 0802 WKRK-5 AL 967 10 Es 1453 WBRZ-2 LA 1002 1503 KATC-3 LA 1026 1559 KPRC-2 TX 1118 KJAC-4 TX 1080 19 Tr 1840 WKLE-46 KY 473	19 Tr 1840 WTVV-36 KY 473 2034 KDWL-30 MO 432 20 Tr 0702 " " " 24 Tr 2034 " " " 26 Tr 1858 WTVV-36 KY 473 WKLE-46 KY " 1900 WYTT-27 KY " 2136 KDWL-30 MO 432 29 Tr 0730 WNEO-45 OH 406 KDWL-30 MO 432 1859 " " " 30 Tr 0705 WLVK-32 KY 473

February 1982
1 Tr 1825 WB-- WI 65
Fond du lac-Sheboygan (WDAF)
Total now at: 799

WAY-2 took two of it's translators off (W78AJ Sheboygan and W75AJ Fond du lac) and replaced both with a translator on ch.8 which is suppose to serve both communities. From their strength, I would say they are running about 100 watts. One thing's for sure, they sure mess up channel 8 to the south. More DX next month.-WJ.

KWVL-TV 7
WTVF 5
WCHL 3
KBJR-TV6
WBDL-TV
WBAY-TV 2

WESTERN TV-DX

March 1982

Fred McCormack
Box 5221
State University Sta.
Fargo, ND 58105
Deadline: 4-2-82

Western TV DX

March 1982

Jim Pizzi, P.O. Box 1778, Lovington, NM 83260
505-396-7361 (Work phone) 505-396-3432 (Home phone)

MST

New _____ New Mode _____ Tentative - t Unidentified - unid

Equipment: Motorola 19" color, Panasonic 13" color, Panasonic 12" b&w, RCA 9" b&w, and Sony 8" b&w.

Tri-Ex MW-65 65' tower. Finco P-7 UHF @ 70' and AC-4990 pre-amp and Channel Master 7352 dist. amp. Winegard CH2026 (chs. 2-6) @ 64' and AC9260 (26 dB - 3 dB Noise). Winegard CH2073 (chs. 7-13) @ 62' and AC9730 (24dB - 3 dB Noise). Running 140' lengths of CAC-11 coax. Two tuneable traps for chs 2-6 and two for chs 7-13 and fixed on channels 8 and 10 (Winegard). Panasonic portable VCR. Pioneer TVX-9500 for TV audio.

Charles George, 6407 Howard, Dallas, TX 75227 CST

January 19, KXII-TV, channel 12, Ardmore, OK, 9:55 AM. Good signals, but some local interference from channels 11 and 13. I also picked up about the same time a unid. with PBS on channel 24. I think it was KIDZ - Wichita Falls. 73's.

John M. Jefferson, 4016 Crest Court, Pleasanton, CA 94566 PST?

I did it! Goal for the year was to reach 100, and when the E skip season bagged a mere 9, it looked impossible. But Winegard UHF booster made December my most productive month ever for TV. Unless noted with "CV" for Castro Valley, all loggings made here in Pleasanton, where I use a Hitachi CT-922 color or Bohsei T-650a b&w tv, with Archer V-185 VHF and Winegard CH-9095 (with booster) UHF antennas both 12' off the ground but with separate leads. The Bohsei is used exclusively for VHF due to less accurate UHF tuning, inferior selectivity, and more image problems, and actually didn't figure in any of the following due to the fact that something was always happening on UHF. (New underlined; new to Pleasanton starred.)

December 1981

18 tr 2120 Dallas U's brf.
31 Es 2040 unid 2 ne brief

January 1982

1 Es 1415 unid 6 ene
1416 WSM 4 TN 968
1417 WCYB 5 TN 1224
1422 WSJK 2 TN 1170
1423 WNGE 2 TN 968
1439 WUNCT 4 NC
(only PBS on ch 4)
1529 WBTV 3 NC 1206
1618 WCBDT 2 SC 1359
(news - rcvcd in Mich)
1730 WFBC 4 SC 1224
2006 KGFE 2 ND 1058
(Prairie Public Tele)
2040 KSRE 6 ND 1035
2145 KDIX 2 ND 936

2 Es 1500 unids 2,3,4
(ms induced)
ms 1505 unid 13

6 tr 1820 KUPKt13 KS
(Ø-KLEK, 20° Head.)

7 tr 1850 KWET 12 OK 275
2107 KCIK 14 TX 201
2110 KXON 23 NM 240
KGSW 14 NM 240
2112 XHJL 44 CH 205
2300 K5WO 7 OK 289
8 tr 0036 KTSM 9 TX 201
0038 KGGM 13 NM 240
0052 KOAT 7 NM 240
0102 K13IL 13 NM 110
9 tr 0730 K69CQ 69 NM 65
(Dora - KBIM-10)
10 Es 1430 unid 2 ene
tr 1935 Albu. 13,14,23
11 Es 1858 KTVU 2 CA 1116
1901 KRON 4 CA 1116
1901-15 unids 3,5,6
tr 2100 unid KXII-12 ??
12 ms unid 7 ene
14 tr 2053 K55AM 55 NM 93
(Cloviss KOB - 4)
2100 K55AC 55 NM 145
(Ruidoso KBIM-10)
2101 K58AH 58 NM 145
(Ruidoso KOAT-7)

14 tr 2102 K62AL 62 NM 78
(Roswell KOAT-7)
2103 K6LAS 64 NM 145
(Ruidoso KOB - 4)
2105 K69CV 69 NM
(Carlsbad KENW-3)
2105 unid 69 mw
2111 unid 67 mw
2120 K69CQ 69 NM 65
15 tr 1745 OKC 14,25,34,43
(weak @ 380 miles)
1748 Tulsa 23,41
(weak @ 473 miles)
1900 xltrs seen 1-14
Es 2245 OKC 2 CA 1116
2249 KRON 4 CA 1116
2251 KPIXT 5 CA 1116
16 tr 1100 Albu, 14,23,240
1130 OKC 14,25,34,43
1143 Dallas 21,27,33,
39
17 tr 0900 K57-- 57 NM 152
(Montoya-New.KOAT-7)
K59BD 59 NM 152
(Mon-NewDirk KGGM-13)
1810 K74DO 74 NM

Date	Time	Call	CH	ST	DIS	Notes
11-8	gw 1730	KCBA	35	CA	73	ID as KCSO-19/KCBA-35 (CV)
	tr 2015*	KCBA	35	CA	73	ID in Pleasanton - very hard as only 11 miles from KICU-36 which is in same direction.
11-14	tr 2000	KAIL	53	CA	135	ID - Now a regular due to their power boost and UHF booster.
11-15	gw 1700	K56BR	56	CA	20	Test Pattern (CV)
11-17	tr 2345*	K29AB	29	CA	65	// KICU - was 100W - is now 1 kW and a regular
12-2	tr 1717*	K59AY	59	CA	65	// K4ST-46 - 100 W aimed away from here
12-4	tr 2125	K65AW	56	CA	48	// KTEH-54 - 100 W
	2205	K56AW	56	CA	100	// KTVU-2 - 100 W
	2207	K62AY	62	CA	100	// KVIE-6 - 100 W
	2208	K58AZ	58	CA	100	// KCRA-3 - 100 W
	2210	K6AAZ	64	CA	100	// KOVR-13 - 100 W
	2212	K68AL	68	CA	100	// KXTV-10 - 20 W
	2214	K52AJ	52	CA	100	// KHSL-12 - 100 W
12-5	tr 2100	KRCR	7	CA	195	ID over KGO-7 (Bay area #100)
12-7	tr 1555	K56AA	56	CA	65	// KTEH-54 (1000 W) Actually signal travelled at least 85 miles, as it came via reflection off a mountain north of here (being due south of here).
12-11	tr 0017	KMEX	34	CA	315	Local messages in Spanish - legal ID at 0500
	0018	KGET	28	CA	315	Health program - verified by phone
	0020	KBSC	52	CA	315	STV - also s/off at 0340
	0021	KWHY	22	CA	315	STV
	0134	KHJ	9	CA	315	Local ad
	0220	KTTV	11	CA	315	Local ad (same as on 91)
12-16	tr 0030	KCEP	28	CA	315	S/off - Los Angeles back for encore
	0108*	K5EYT	3	CA	245	S/off - over KCRA
12-29	tr 0010*	K56BR		CA	25	// KNTV-11 (signal travelled more like 45 miles - again a bounce from the north off Mt. Diablo when mtns to south made direct reception impossible). K56BR is 1 kW aimed se, so supposedly both here and CV are in its null. But is solidly useable there, so no idea what power it actually pumps this way.

Totals continue to rise here - now 141. It took me 5 years to reach that in California. Started looking for translators and netted 9 new ones. Es of January 1 was a long session, 7 hours, summer time quality with good openings into FM also. Trots to 360 miles fairly common so far.

Looking forward to spring trots and Es. Best of DX. (Nice equipment line-up - fm)

Fred McCormack, 135 Prairiewood Drive, Fargo, ND 58103

CST

January 1982

3 Es 2231 unid 2 w CBS
2300 unid 2,3 w CBS
(MUF 91.7)

3 Es 2301 KREM 2 WA 960
KLEW 3(WA) 960
(MUF 106.3 @ 2310)
2329 KREM 2 WA 960

8 Es 0834 unid 3 se NBC
0857 unid 3 se ABC
0900 unid 2 se PBS
(probably WDIQ-2)

I was gone the evening of 1-1 so missed what would apparently have been an Es opening to New Mexico. My logging of an experimental station from Eagle Bend, MN last October has now been identified as KG2XCB.

Conditions are really dead here and probably will be for some time to come. If DX is happening where you are, please report it.

Regarding those Lakeport translators, the times given represent the first time I had something identifiable. At that point, I wasn't sure whether ch 58 was a KCRA or KRON translator, whether ch 64 was KOVR or KGO, whether ch 68 was KXTV or KHSL or KPIX, or whether ch 52 was KXTV or KHSL or KPIX. During the next 24 hours, they were in and out, and in that time each was positively identified as a translator for the specific station. The reason for sticking with the original times is simply that the six are co-sited, so since K56AW and K62AY were positively identified, the other four just fell into place (once one had current information, which I didn't at the time).

Guess that does it. Log stands at 107 for bay area (102 for Pleasanton).

KRBC TV
9 Abilene

KACB TV
3 San Angelo

KSDK
5

WABG-TV6
Greenwood, Greenville, Miss.

KLMN-TV
24

KOAM
TV
7

6 WDAY TELEVISION
FARGO, NORTH DAKOTA

WPAZ 8 TELEVISION
BEVELS LAKE / GRANN FORTS

QSL CORNER

TV-QSL's

- DE W64AS 64 Seaford, % WHYY-TV-12, Independence Mall, 150 N. 6th St. Philadelphia, PA 19106. Send back my prepared card, plus letter after follow-up (1st letter was sent to Wilmington, DE address. Signed by Robert H. Hall, Senior Vice Pres. of Engineering. Holbrook
- DC WDVM 9 Washington, 4001 Brandywine St. N.W. 20016. Letter from Henry R. Owen, Dir. of Eng in 18 days. Holbrook
- WHMM 32 Washington, 2600 4th St. N.W. 20059. Letter from M. J. Watkins, III, Dir. of Operations & Eng. Holbrook
- LA WBRZ 2 Baton Rouge, P. O. Box 2906, 70802. Unsigned card back in 1 week. Reese
- WWL 4 New Orleans, 1024 N. Rampart St. 70176. Letter from Hugh R. Burney, Dir. of Tech. services reply in 6 weeks. Reese
- KTBS 3 Shreveport, P.O. Box 44227, 71104. Postcard from Dave Hendricks, CE in 2 weeks. Reese
- MA WGGB 40 Springfield, 1300 Liberty St. 01101. Letter from T. F. Gratkowski, CE thanking me for the report. Included in reply coverage-map for WHYN-TV, old call, in 1 week. Schweitzer
- WCDC 19 Adams, % 341 Northern Blvd, Albany, NY 12204. Letter from Andrew Yacevich, Asst. CE reply in 2 weeks. Schweitzer
- MN KTCA 2 St. Paul, 1640 Como Ave. 55108. Letter from Scott Holisky, Eng. Sup. reply in 3 1/2 weeks. Reese
- NY WBNG 12 Binghamton, S. Front St. 13092. Lone letter from M. A. Monica, CE in 9 days. Schweitzer
- OH W27AC 27 Bowling Green, Bowling Green University, 43403. Letter from William Leutz, CE full data letter on WBGU-TV-57 translator 100 watt on Univ. campus. Reply in 1 month. Ross
- WGTE 30 Toledo, 415 St. Clair, 43604. Letter in 3 weeks from Dan Niedzwiecki, CE. Ross
- W64AF 64 Cleveland, 4300 Brookpark Rd. 44134. Letter from Ralph E. Campbell, Dir. of Eng. reply in 6 weeks. translator of WVIZ-TV. Ross
- OK KGMC 34 Oklahoma City, 1501 NE 85th St. zip 73113. Nice verie letter from Greg Miller, CE, send sked & coverage-map in in 1 week. My first uhf tv verie! (welcome to the club! hi!) Rogers
- PA WWSG 57 Philadelphia, 300 Domino Lane, 19128. Letter from Harry R. Jenny, CE after follow-up. Holbrook
- WFMZ 69 Allentown, E. Rock Rd. 18103. Send back my prepared card & the signer is unreadable!!! Reply in 3 1/2 months. Holbrook
- WIVE 51 Reading, 1129 N. 11th St, 19604. Prepared card after a follow-up reply back in 4 1/2 months. The signer was David J. Swartz, CE. Holbrook
- WGCB 49 Red Lion, Box 88, 17356. Prepared card after follow-up in 3 1/2 months. Also I included ch. 61 report, but crossed that out. I had reported station which carries WGCB programs, & they said- "We have no output on ch. 61. It must be an image response or local product intermod." It's hard for me to believe that they don't know about W61AN Newark-Brookside, DE carrying their programs. Signer was F.W. Wise! Holbrook
- TX KMID 2 Midland, P. O. Drawer B, 79701. Letter from Grady Woodward, CE who also enclosed a sheet explaining E-skip & a booklet on NBC Broadcasting Standards. Reply in 6 days. Durkin

Reporters this time around are: Holbrook, Reese, Ross, Schweitzer, Rogers, Durkin & Hollis, (last names only). This month I'm using a new typewriter, which is why the type is so big, next month will be smaller. My second page is this month's copies of TV-QSLs from Mike Hollis.

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

Your report on reception of July 28 - 79
at Hephzibah, Ga. is acknowledged. KPRC Television
operates on a frequency of 50-60-mHz with a power of 10,000
watts visual and 10,000 watts aural. The studio is located at
8181 Southwest Freeway and the transmitter is located four
miles east of DeWalt, Texas, on Highway 6. The KPRC TV
tower is 1473' above ground and 1549' above sea level at N.L.
29°-33'-25" and W.L. 95°-30'-04". It is a pleasure to have you
in our audience.

E. P. Huhndorff
For KPRC TV

KPRC-TV-2 Houston, TX
8181 Southwest Fwy.,
77036,
QSL-Card from E. P.
Huhndorff, VP of
Operations.
Reply in 6 months.
Hollis received in
in Hephzibah, GA

CBS - KDFW-TV - CBS CHANNEL 4

Dear *Mr. Hollis*,
Thank you for your recent communication reporting reception of our
station, KDFW-TV, in *Hephzibah, Ga.*
We appreciate your interest and trust that you will watch our station
whenever possible.

Sincerely yours,
KDFW-TV
Dallas, Texas

KDFW-TV-4 Dallas, TX
400 N. Griffin, 75202
Reply in 6 days, no
signer on card.
Hollis
received in
Hephzibah, GA



LANSING-JACKSON

HARRIS TABIOTH ANTENNA
HARRIS BTD 50 H2 TRANSMITTER
316,000 WATTS, ERP VISUAL
61,700 WATTS, ERP AURAL
ANTENNA HEIGHT 992 FEET
RCA STUDIO COLOR
NBC NETWORK

This will acknowledge your recent communication on
reception of WILX-TV on *24 Aug* at *440 CDST*
We appreciate your comments and hope we may hear
from you again. *Richard A. Swank*
Chief Engineer

WILX-TV-10 Lansing, MI
100 N. Pennsylvania,
48909
signer, Richard A.
Swank, CE received
in 9 days. Received
in Ft. Campbell, KY

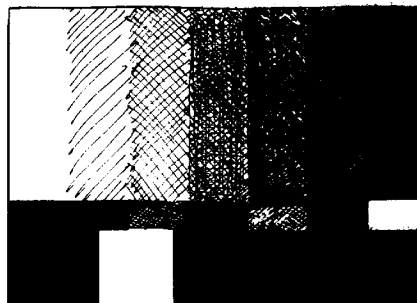
C.C.I. [UNIDENTIFIED DX]

Robert Grant
5775 Bishop
Detroit, MI 48224.
March, 1982.

CCT- unidentified DX.

March, 1982.

MISCELLANEOUS:
New KARD-3 logo:



DRAWING 1



DRAWING 2



(ALSO ON KCKT-2, KMC-8,
KGLD-11 AND K18A.)

TV unIDs:
Paul L. Gaines, 1/2 C.P. Cleaning, 15920 Puritan St., Detroit, MI 48227.
1980: Tue 22 Jul Es ch 5 1327 EDT-- "FSES" seen (PTA: SW)
Wed 23 Jul Es ch 5 0156 EDT-- Hispanic-type man with "FSES" behind him. (PTA: SW)

Ronald Purdue, Route #1, Box 224, Byron, MN 55920.
1981: Sun 20 Sep Tr ch 25 1102 CDT-- Religious Program. (PTA: ESE)
(Maybe WEYI. Most commercial stations have some of this on Sundays. -RG)

Bill Fahber, 336 Atlantic Street, Bridgeton, NJ 08302.
OFTEN: NO DATE Ms ch 2 NO TIME-- CBP (Drawing 1) w/350 Hz tone.
(The CBP looks like the one used by CKCO. I don't know their tone Frequency. -RG)
NO DATE Ms ch 2 NO TIME-- Standard 3/4 CBP. (see below -RG)
NO DATE Ms ch 2 NO TIME-- Circle-Wedge TP. (see below -RG)
NO DATE Ms ch 2 NO TIME-- Multiburst Resolution TP. (see below -RG)
(WGR uses all three of these, alternating at irregular intervals.
But that doesn't mean your's definitely seeing WGR -RG)
1981: Tue 20 Jan Es ch 3 2350 EST-- ad "The Lumber Co." Restaurant in Aberdeen.
(Definitely KDLO -RG)
Thu 28 May Es ch 4 1642 EDT-- ad "Colonial Penn Insurance Co." (PTA: TX,OK)
(This company does business nationally. -RG)
Mon 8 Jun Es ch 2 1541 EDT-- TP, Followed by slide "Radio Canada Winnipeg Regina",
+ offset (Definitely CWFT7, Kenora. -RG)
Sun 21 Jun Es ch 5 1559 EDT-- "SW'n Bell" ad. (I know they serve XKAS's area
but they might also serve other areas. -RG)
Thu 6 Aug Es ch 4 2309 EDT-- ad- "Plywood Minnesota" (Most likely WCCO. -RG)
" " " " ch 6 2319 EDT-- ad- "Northern Natural Gas Co." (see Drawing 2)
Mon 7 Dec Ms ch 2 0146 EST-- ad- "Q-101" radio.
Fri 11 Dec Ms ch 2 0218 EST-- "The Good Word"
1982: Mon 4 Jan Es ch 2 0133 EST-- STARTIME THEATRE: "Not With My Wife You Don't"
Tue 5 Jan Ms ch 2 0243 EST-- "Tim O'Donnell, Editorial Director" seen.

Jeff Wolf, 1131 University Blvd. W., Apt. 701, Silver Spring, MD 20902.
1980: Wed 9 Jul Tr ch 12 0430 EDT-- Local nx, Weatherman mentioned "Down in IL & IN"
and showed Minneapolis radar. (Most likely WISN. WICU & WISN are
the only 12's on that late in that direction. -RG)
1981: Thu 15 Oct Tr ch 30 0946 EDT-- Promo for "It Takes A Thief" Weekdays at 10 on 30.
(Could be either AM or PM.)

Robert Grant, 5775 Bishop, Detroit, MI 48224. editor.

1981: Sat 12 Dec Es ch 3 1945 EST-- "Lawrence Walk Show" (PTA: S)
1982: Mon 4 Jan Es ch 2 0635 EST-- 3/4 CBP into "University of the air" (CTV) @ 0700.
" " " " ch 3 0635 EST-- // to ch 2 above (PTA for 1/4 is NW.)
" " " " ch 3 0728 EST-- CBP like Drawing 1. w/ Digital Time (CST) and
flashed CBC round test card for 1 sec @ 0731.
" " " " ch 5 0731 EST-- "McLean at Large" (CBC)
" " " " ch 5 0810 EST-- "Jimmy Swaggart's Study Of The Word"

TV IDs: Robert Grant

1981: Thu 6 Aug Es ch 6 1909 EDT-- "Barney Miller"
(Ken Simon IDed this as WCIX.) (TNX!-RG)

I would like to say tnx to all the members who reported to the column.
Keep up the good work! Let's have some more reports (This also means FM unIDs.) all
comments are welcome.

Based on many factors, including a good winter season, I am forecasting a
good summer Es season. 1981 had lots of Es. But few hit a high MUF.
73 & gud DX.

This Report Just In:
Robert Goodman, 2030 Herring Ave., Bronx, NY 10461.

1981: Thu 18 Jun Es ch 3 1718 EDT-- "Happy Days"
" " " " ch 3 1718 EDT-- movie in "Planet of The Apes" series.
" " " " ch 3 1730 EDT-- ID slide with "THAT'S ENTERTAINMENT" at top.
and an ad for Krystal.
" " " " ch 3 1731 EDT-- "Sanford & Son"
" " " " ch 3 1731 EDT-- "My Three Sons"
Fri 26 Jun Es ch 3 1159 EDT-- NBC station w/promo for "Good Times" and W??? call.
Sun 28 Jun Es ch 3 1930 EDT-- ID slide with "THAT'S ENTERTAINMENT" at top.
helicopter. time running in IR. (Most likely CJBRT. Rimouski, Quebec.
Many DXers in the East Coast area saw Es from the east that evening. -RG)
Sun 5 Jul Es ch 4 1843 EDT-- "Razzmatazz" (could be any CBS. -RG)
Wed 22 Jul Es ch 3 1600 EDT-- begin "Leave It to Beaver"
Thu 6 Aug Es ch 2 1728 EDT-- "Action News 2" (PTA for 8/6 is S)
" " " " ch 3 1730 EDT-- movie with shipboard setting.
" " " " ch 2 1735 EDT-- "M*A*S*H"
" " " " ch 3 1738 EDT-- "My Three Sons"
" " " " ch 3 1740 EDT-- "Sanford & Son"
" " " " ch 5 1755 EDT-- "Gilligans Island" + offset.
" " " " ch 3 1803 EDT-- "Tic Tac Dough"
" " " " ch 3 1803 EDT-- "Eyewitness News" (WEAR -RG)
" " " " ch 3 1803 EDT-- "Beverly Hillbillies" w/ Budweiser ad @ 1818.
" " " " ch 3 1822 EDT-- "Happy Days"
" " " " ch 3 1829 EDT-- ABC station, not // to WABC. (of course not, local
nx time. The logo you drew looks like WEAR's logo. -RG)

Out of Sync!

EASTERN TV DX editor Bill Draeb posed this
question: "Didn't I see that picture on the
August 1981 VUD cover somewhere else??"

Actually, the cover of the August 1981 VUD
is not a "rerun"--but almost. Longtime
WIFDA members may remember the April 1972
VUD, which featured a very similar drawing
of Mississippi ETV station coverages. The
differences in the drawings--both provided
by Mississippi's ETV network--are very
minor. Still, it's quite a coincidence for
two VUD covers over 9 years apart!

Your Editor-in-Chief would like to apologize
to DXers John Clemmer and Dave Walcutt.
The convention photo feature on page 29 of
the October 1981 VUD accidentally identified
John as Dave. The error was Bill Thompson's,
and not that of the photographer or conven-
tion host.

METEOR SCATTER

PART TWO: The Physics of Meteor Scatter

by Bill Fahber

INTRODUCTION:

A few things need to be said first about the first article, which appeared in the April, 1981 VUD. Several members pointed out my mistake about 2000 A.D. not being a leap year. 2100 A.D. will be the next normal leap year to be skipped, not 2000 A.D. The statement about no shower meteors being seen if the radiant was below the horizon was oversimplified, and there were a few comments on that also. Actually, if the radiant were less than a few degrees below the horizon, a small number of shower meteors could still be seen, which is why I left a 1% OHR on the chart.

I. EARLY STAGES OF METEOR SCATTER RESEARCH

The idea of meteors affecting radio signals was suggested as far back as 1929 by Hantaro Nagaoka in a paper suggesting that meteor trails may scratch the ionosphere and weaken its ability to reflect signals. Greenleaf W. Pickard, of the RCA Victor Company of Massachusetts, tested Nagaoka's theory by monitoring station WBBM, and noted that nighttime reception improved about a month after high meteor activity. In fact, charts of radio reception and meteor activity were surprisingly similar, except that the radio chart was offset by a month. He concluded that meteors somehow improved reception, contrary to Nagaoka, but could not explain the one-month difference. Pickard also noted that, while monitoring European stations, he observed a meteor whose trail's appearance and disappearance was simultaneous to a scratching sound on the radio.

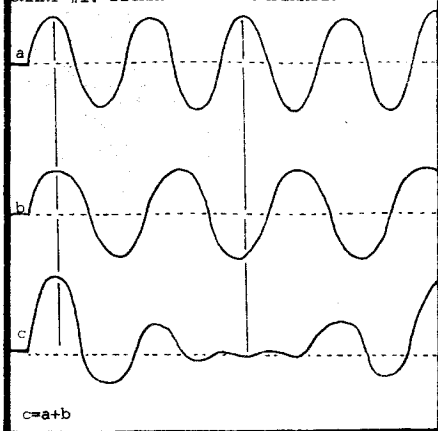
With the advent of World War II, radar became used quite heavily, and for the first time backscatter from meteor trails became realized. One of the earliest studies of meteor scatter was to determine radiants of meteor showers by means of backscatter. In the early fifties work had begun to study forward scatter characteristics, prompted largely by the desire to develop communications systems, especially by the military.

Eventually meteor scatter would become the tool of ham radio operators working with VHF, and eventually the means by which VHF-UHF DX enthusiasts could add to their loggings stations too far for most tropospheric distances and too close for E-skip.

II CHARACTERISTICS OF MODULATION INVOLVED IN METEOR SCATTER

Before meteor scatter can be studied in

CHART #1: SIGNAL PHASE COMBINATIONS



MODULATION: When waves a and b are in phase, the combined signal is equal to the sum of the two; but when completely out of phase, the total signal strength is equal to the difference between them.

detail, it would probably be best to review modulation and destructive interference, since this plays a major part in deterioration of reflected signals.

When two waves combine (sound, electromagnetic, matter waves, and even water waves are affected), the total signal strength does not necessarily increase. Rather it will fluctuate at a rate equal to the difference between the two frequencies. When the two waves are in phase, the total signal strength is equal to the sum of the strengths of the two signals; when out of phase, the combined signal strength is equal to the difference between the strengths of the two signals. The two waves will be in-and-out of phase at a rate equal to the difference between the two frequencies.

Signals reflected by a moving object, such as an airplane or metallic windmill blades, are slightly altered in frequency, due to a doppler shift. A receiver picking up a direct signal as well as a reflected-shifted signal will detect variations in signal strength in the form of fading.

III. DENSITY AND DISTORTION CHARACTERISTICS

Meteor scatter bursts are normally divided into four types: Underdense, Underdense-Distorted, Overdense, and Overdense-Distorted. The density (electron density) is mainly a result of the mass of the meteor, but the meteor velocity has a small effect on density. The distortion, evidenced by the fluctuating signal strength, is a result of high-velocity winds in the ionosphere.

ELECTRON LINE DENSITY

Studies of meteor arrivals have shown an inverse relationship between meteor mass and

CHART #2: METEOR PROPERTIES

MASS (grams)	RADIUS (cm)	DENSITY	LINE RATE	MAGNITUDE
10^3	4	-	10^2	-10
10^2	2	-	10^3	-7.5
10	0.8	10^6	10^4	-5 (fireballs)
1	0.4	10^7	10^5	-2.5 (Jupiter)
10^{-1}	0.2	10^8	10^6	0
10^{-2}	.08	10^9	10^7	2.5
10^{-3}	.04	10^8	10^8	5 (visible limit)
10^{-4}	.02	10^9	10^9	7.5 (telescopic)
10^{-5}	.008	10^{12}	10^{10}	10
10^{-6}	.004	10^{11}	10^{11}	12.5
10^{-7}	.002	10^{10}	10^{12}	15
10^{-8}	.0008	10^9	10^{13}	17.5

arrival rate. If during a given period of time there were an X number of meteors of Y mass, there would also be 2X meteors of $\frac{1}{2}Y$ mass, and 4X meteors of $\frac{1}{4}Y$ mass, and so forth. So for that period of time, the total mass for any given size meteor will be XY.

There are daily, hourly, and seasonal variations in the rate of meteors hitting the earth, but chart #2 shows an approximate rate at which various size meteors hit the earth's atmosphere, along with their visual magnitude. Meteors heavier than 10^3 grams usually reach the earth's surface, and the line density will not be consistent there. Particles less than 10^{-8} grams (meteoric dust) do not burn up, but rather drift to the earth, and no trail is produced.

Note also the direct relation between the meteor's mass and the electron line density, which is the number of electrons per meter of trail length.

Three more observations need be noted from the above chart. Firstly, ionized meteor trails fainter than +5 magnitude, which are below the visible limit, outnumber visible trails on the order of 100,000 to one. But since a very small fraction of these are positioned properly to fulfill the requirements for specular reflection, which will be discussed later, we find the actual number of meteor scatter events to be much smaller, approaching the number of visible trails, or the observed hourly rate (OHR).

Secondly, the 10^8 electron line density is a dividing point between the underdense and overdense trails, which follow completely different sets of principles. Also note that this is the limit of visibility, which means that overdense trails are formed by meteors producing visible trails. Underdense trails are too faint to be seen.

Thirdly, while this chart applies to sporadic meteors mainly, meteor showers tend to stray from the mass-rate ratio. Thus showers such as the Quadrantids in January and Delta Aquarids in July-August tend to produce more overdense trails than you would normally expect.

Radio waves can pass through an underdense trail, which behaves as if it were made up of independent scatterers within the trail. The denser the trail, the stronger the scattered signal. Overdense trails behave more like metallic cylinders, preventing complete penetration of the radio waves.

Because of these different characteristics, we find that different principles will be applied to each type of trail.

WIND DISTORTION

Winds in the ionosphere tend to warp a meteor trail, and this in turn causes variation in the received signal strength.

Signals can be reflected as soon as the trail is formed. The strongest source of received signal is from that portion of the trail where specularly occurs, or where the angle of incidence equals the angle of reflection. That is, a point on the trail where the angle from its axis to the transmitter is equal to the angle from the axis to the receiver. But as the trail is distorted by 50 mph winds, the area of reflection will move, and other areas meeting specularly requirements may appear, resulting in two or more moving sources of strong reflection. This will be evidenced on a television set by multiple "ghost" images appearing after the first image. As the received signals from these multiple sources move in-and-out of phase, the received signal strength will rise and fall at irregular rates.

IV: UNDERDENSE AND UNDERDENSE-DISTORTED METEOR TRAILS:

RECEIVED SIGNAL STRENGTH

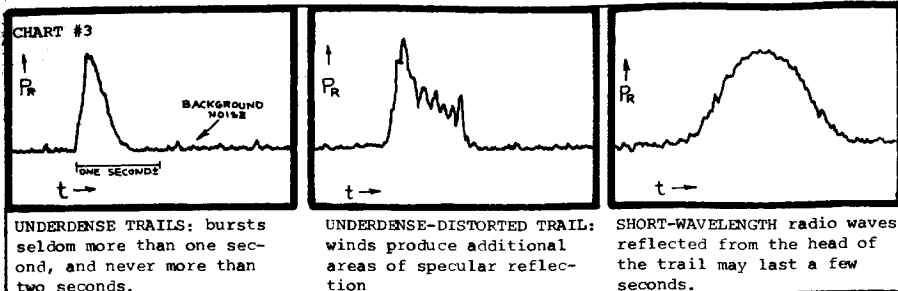
Signal strength (P_R) from meteor scatter is affected by several factors, but a basic formula to show the relationship between these factors and signal strength is:

$$P_R \sim \frac{P_T \lambda^3 q^2}{R_T R_R (R_T + R_R)}$$

P_T is the transmitter power, which is directly proportional to the received signal strength: If the transmitter were double in power, the received signal would also be double. Wavelength (λ) is a major factor affecting signal strength. For example, the wavelength of the video portion of channel 2 is about 3/2 times the wavelength of channel six video. Taken to the third power, we have 27/8, or about 3.3; this means that we should expect signal strength on channel 2 to be about 3.3 times as strong as on channel 6. This is about equal to a 10 dB difference.

The electron line density (q), in electrons per meter length of trail, produces the greatest variation in signal strength. Referring back to the meteor properties chart, we find that an increase in q by a factor of ten would reduce its rate to 1/10, but that mass increase makes $q^2 \cdot P_R$ increase by a factor of 100, or 40 dB. Thus a comparison of events to signal strength would show a decrease to 1/10 for an increase of 40 dB.

R_T and R_R are, respectively, distances to the point of reflection from the transmitter and from the receiver. These are not necessarily equal, or even close to being equal. But assuming that, on the average, $R_T = R_R$ ($=R$), we could substitute $2R^3$ in the above formula, and discover that we are dealing with an inverse cube law instead of the inverse square law for normal line-of-sight reception. In other



words, given two stations on the same frequency and with the same power, but one being twice the distance, the nearer station's received signal will be eight times as strong, or 18 dB greater.

The formula for received signal strength is actually oversimplified, assuming a perfectly straight meteor trail of zero radius. But because of factors working to deteriorate the trail from the instant formation begins, the full potential of a meteor trail can never be achieved.

RAPID RISE AND DECAY OF SIGNALS

The underdense trail is by far the most common, and is responsible for the infamous "blips" lasting usually no more than a fraction of a second.

The point where specularly occurs is the source of the strongest reflection, but an area around that point, commonly called the "first Fresnel zone," is responsible for most of the reflected signal. As the meteor enters this zone and passes through, the received signal rapidly rises to its greatest strength.

The sudden fall of the signal is not due to decay of the meteor trail, but rather due to destructive interference. As stated earlier, underdense trails behave as if consisting of many independent scattering electrons within the trail. Since the received wave is reflected from many points within the trail, it is made up of many reflected waves which are not perfectly in phase. As the radius of the trail widens, the phase difference of the individual waves increases. With backscatter reflections, the signal is nearly gone by the time the radius expands to $\lambda/2\pi$. With forward scatter, the radius may be a little larger before fadeout.

Studies by J.S. Greenhow and J.E. Hall published in the August, 1960 Monthly Notices of the Royal Astronomical Society indicate an initial trail radius of 0.55 meters at 50 miles altitude, and 4.35 meters at 75 miles altitude, indicating that trails reflecting signals at a point closer to the earth's surface can reach higher frequencies. In addition to the initial radius, there is a diffusion co-efficient (D) which varies with altitude. At 50 miles altitude, $D=1m^2/sec.$ At 90 miles altitude, $D=140m^2/sec.$, a much more rapid diffusion because of the thinner atmosphere. The radius of a point on the meteor trail at its instant of formation can be represented by the symbol r_0 . But at a given amount of time (t) in seconds, the

radius is determined by the formula:

$$r_t = \sqrt{4Dt + r_0^2}$$

Assuming the signal fades out when $r=\lambda/2\pi$ we find that this occurs when:

$$\frac{\lambda}{2\pi} = \sqrt{4Dt + r_0^2}$$

If we modify this formula to solve for t, we have the following formula:

$$t = \frac{\lambda^2}{16\pi^2 D} - \frac{r_0^2}{4D}$$

Suppose we receive a reflected television signal on channel 2 from an underdense meteor trail. At 55.25 MHz, the wavelength (λ) is 5.43 meters. $\lambda/2\pi$ is then 0.864 meter. larger than the initial radius of 0.55 meters at 50 miles altitude. When the radius expands to $\lambda/2\pi$, the trail becomes too wide for backscatter at that frequency. Using $D=1m^2/sec.$ in the above formula, we find that the trail expands to $\lambda/2\pi$ in 0.1 second. The oblique angles of reflection characteristic of forward scatter allow the radius to expand to more than $\lambda/2\pi$ before fadeout, but even so, the rate of expansion causes fadeout to occur within two seconds.

To study oblique reflections, it is necessary to look at a reflected signal from several views, as shown in figure A. In backscatter $\phi=0^\circ$, and $\sec\phi=1.000$ (The secant of an angle is the inverse of the angle's cosine, or equal to the hypotenuse divided by the adjacent leg in a right triangle.). A simple formula for the duration of a backscatter signal, disregarding the radius at the time of formation is:

$$t = \frac{\lambda^2}{16\pi^2 D}$$

But for forward scatter the following formula must be used, taking into account the forward scatter angle ϕ :

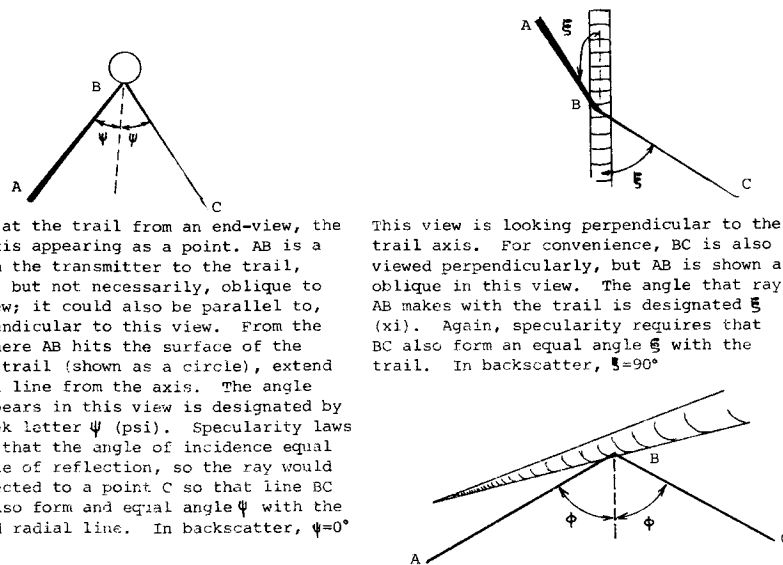
$$t = \frac{\lambda^2 \sec^2 \phi}{16\pi^2 D}$$

It then becomes obvious that the angle of deflection is a dominant factor in extending the duration of a reflected signal.

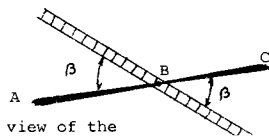
METEOR SCATTER AT HIGHER FREQUENCIES

But another problem arises with underdense trails: at certain frequencies, the time of duration as given by the above formulas does not take into account the fact that it takes time for the first Fresnel zone to form. In reality, the time of duration may be so short that the meteor will not have reached halfway through the first Fresnel zone when the zone already expands beyond its usefulness. Thus each

FIGURE A: REFLECTED WAVE AS SEEN FROM DIFFERENT VIEWS



Looking at the trail from an end-view, the trail axis appearing as a point. AB is a ray from the transmitter to the trail, usually, but not necessarily, oblique to this view; it could also be parallel to, or perpendicular to this view. From the point where AB hits the surface of the ionized trail (shown as a circle), extend a radial line from the axis. The angle that appears in this view is designated by the Greek letter ψ (psi). Specularity laws require that the angle of incidence equal the angle of reflection, so the ray would be reflected to a point C so that line BC would also form an equal angle ψ with the extended radial line. In backscatter, $\psi=0^\circ$



This is an edge view of the plane formed by angle ABC, viewed so that we look at the meteor trail perpendicularly. The angle made by the trail with plane ABC is represented by the Greek letter β (beta). In backscatter, $\beta=90^\circ$

This view is looking perpendicular to the trail axis. For convenience, BC is also viewed perpendicularly, but AB is shown as oblique in this view. The angle that ray AB makes with the trail is designated ξ (xi). Again, specularity requires that BC also form an equal angle ξ with the trail. In backscatter, $\xi=90^\circ$

In this view we are looking normal to the plane formed by angle ABC. The meteor trail is here shown oblique to the plane, but this is not necessarily always the case. The Greek letter ϕ (phi) is one-half the angle ABC. The actual deflection of a radio wave would be $180^\circ-2\phi$. ϕ is a major factor affecting the duration of the reflected signal. (see text.)

trail has a transition wavelength, which is dependent on meteor velocity, height, and the length of the first Fresnel zone. Random observations of meteor trail reflections have narrowed transition wavelengths to within a probable range of 2.9 meters (103 MHz) for backscatter, and 0.5 meters (600 MHz) to 1.6 meters (188 MHz) for forward scatter.

The meteor trail was assumed to be roughly in the form of a cylinder for previous formulas. But if we were to plot a graph of the expanding radius formula,

$$r_t = \sqrt{4Dt + r_0^2}$$

we would produce a parabola, indicating that the head of the meteor trail takes on a parabolic, rather than cylindrical, shape. Because of this geometric difference, different formulas apply for duration and received signal strength. Although shorter wavelengths could not be reflected from cylindrical trails, the head provides reflection for both short and long wavelengths.

For signal duration, we use a relationship,

$$t \sim \frac{D}{v^2 \lambda}$$

In other words, increased rate of diffusion

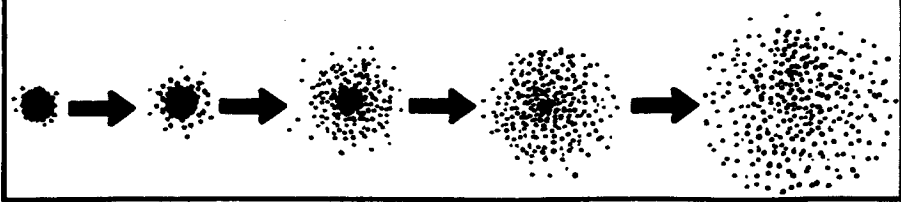
actually increases the duration of a reflected radio wave. Velocity also affects duration: slower meteors (lower values for v^2) tend to produce longer bursts. The increase of diffusion and the decrease of velocity make the head of the ionized trail more rounded, thus extending the duration of the received signal. But we also note that increased wavelength decreased duration. In other words, the duration of a meteor scatter burst will be longer at higher frequencies, mainly because the shorter wavelengths are dispersed over a wider area. But because of the wider spread at higher frequencies, the received signal strength will be much less. This is illustrated by the following formula for received signal strength:

$$P_r \sim \lambda^6 q^2$$

In other words, results at a given frequency will average about 64 times the signal strength as would results at twice that frequency. But we still have q^2 working in our favor as we did with the specular reflections below transition frequencies.

Meteor scatter with underdense trails does exist in the upper VHF and UHF bands,

FIGURE B: DIFFUSION OF AN OVERDENSE TRAIL



although results are nowhere near comparable to the lower VHF frequencies. If you're DX'ing above the FM band, the choice is yours: higher frequencies will give you longer durations, and lower frequencies will give you stronger signals.

FREQUENCY SHIFT OF HEAD-OF-TRAIL REFLECTIONS

Because signals are being reflected from a moving point of reflection, we should expect changes in frequency from the signal being transmitted to the signal being received. When dealing with specular reflections, this can be considered minimal. Because of wind velocity in the ionosphere (about 25 meters per second), a small drift in the trail will not change the frequency more than a few Hz. But with reflections from the head of a meteor trail, we have a rapidly falling source of reflection. The received signal can vary significantly from the actual transmitter frequency. If the meteor path is as much as 600 miles in length, the frequency could change by as much as 5 kHz. So don't let CCI patterns fool you.

V. OVERDENSE AND OVERDENSE-DISTORTED TRAILS: DURATION OF RECEIVED SIGNALS

While underdense trails refract some of the radio waves passing through, overdense trails cause total reflection. Figure B shows a cross section of an overdense trail as it diffuses. The black area is the "effective radius," the area where total reflection occurs. As the trail diffuses, the effective radius decreases while the ionized area around it increases. Eventually the effective radius disappears and the trail becomes an underdense trail. The backscatter duration of the reflected signal is represented by the formula:

$$t = \frac{r_e q \lambda^2}{4\pi^2 D}$$

where r_e is the radius of the electron (2.8×10^{-15} meter); q , as before, is the electron line density. Note that wavelength (λ) is a major factor affecting the duration of the received signal. As the trail diffuses it becomes ineffective first at shorter wavelengths, then at longer wavelengths. Thus the overdense trail can be considered to have a swiftly declining maximum usable frequency. D is the diffusion coefficient, with the same values as for underdense trails.

As with underdense trails, $\sec^2 \phi$ has a direct effect on signal duration. For forward

scatter the duration of the reflected signal is:

$$t = \frac{r_e q \lambda^2 \sec^2 \phi}{4\pi^2 D}$$

If we used a value of $q = 0.9 \times 10^{14}$ electrons per meter in this formula we find that:

$$\frac{r_e q \lambda^2 \sec^2 \phi}{4\pi^2 D} = \frac{\lambda^2 \sec^2 \phi}{16\pi^2 D}$$

larger values for q would make signal duration for the overdense formula greater than for the underdense formula. Reflected signals last from a few seconds to as long as an hour, but one-hour durations are extremely rare.

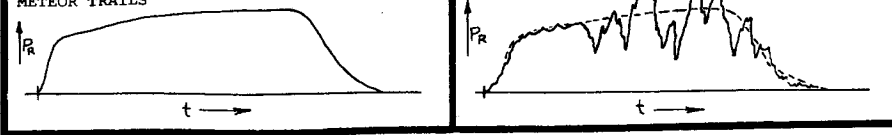
One minor factor affecting duration of overdense bursts is the expanding ionized area around the effective radius. In cases where $\beta = 0^\circ$ (see figure A for an illustration of the various angles used), $\sec^2 \phi$ is the proper term for the formula. But a study of randomly selected observations by L.A. Manning of Stanford University's Radio Propagation Laboratory suggests that $\sec \phi$ may be more appropriate for forward scatter, and perhaps in cases where $\beta = 90^\circ$, $\sqrt{\sec \phi}$ may be closer to an accurate substitution for $\sec^2 \phi$.

SIGNAL DURATION

High velocity wind in the ionosphere is responsible for distortion of both overdense and underdense trails. With underdense trails a warp may produce one or more additional bursts immediately after the first burst. But with overdense trails additional reflections occur within the duration of the first reflection. The result is destructive interference. As the multiple reflections vary with phase rapid fluctuations in the received signal strength will occur. These fluctuations will continue for the duration of the received signal.

Chart #4 shows the variation in signal strength with time for an overdense trail. At the left is a theoretical graph of an undistorted trail. Note a sudden sharp rise in signal strength, which is not instantaneous, but rather a fraction of a second. This is the time necessary for the meteor to cross the first Fresnel zone. Because the maximum deflection of the reflected signal decreases ($\sec^2 \phi$), the reflected waves become more concentrated and the received signal will increase slightly until the end of the signal duration, at which time there is a rapid drop in the signal strength until it finally fades out completely. The right side of

CHART #4: OVERDENSE & OVERDENSE-DISTORTED METEOR TRAILS



the chart shows a typical overdense trail which later becomes distorted by wind, forming other signal reflections which interact with the first reflection.

The maximum received signal strength to be expected, not taking distortion into account, can be shown by the relation,

$$P_R \sim \frac{P_T \lambda^3 \sqrt{V}}{R_T R_R (R_T + R_R)}$$

This is similar to the relation used for underdense trails, except that electron line density is not as influential with overdense as it is with underdense trails.

IV: RELATION OF DIFFUSION COEFFICIENT TO HEIGHT OF FIRST FRESNEL ZONE

Early studies of the diffusion of trails were limited to determining an average for various meteor showers, but the earliest studies of altitude-diffusion ratios were done at the Jordell Bank Experimental Station of the University of Manchester under the direction of Professor A.C.B. Lovell. It had been known previously that diffusion is greater at higher altitudes and that the reattachment of electrons to nuclei was insignificant when studying VHF reflections.

The Jordell Bank experiment began in November, 1953, using a signal transmitted on 36.4 MHz. Two receiving antennas were constructed, 4.13 and 2.07 meters above a good reflecting surface ($\lambda/2$ and $\lambda/4$ above the ground, where $\lambda = 8.27$ meters). The difference in height resulted in a phase difference in signals from the meteor trail directly and from the reflected ground signals. The phase difference produced a difference in the received signal strength between the two antennas. By measuring that difference the angular height of the reflecting source could be determined within 1.2° . By transmitting a 600 Hz pulse (with every fourth pulse doubled) and timing the return of the pulses, accurate distances to the first Fresnel zone could be determined. With distance and angular height measured, the

altitude of the first Fresnel zone could be measured within 2 mile's accuracy. Received signal strength was displayed vertically on a cathode ray tube, while time was displayed horizontally. But the horizontal run would not move until triggered by a meteor burst, which also triggered photography apparatus to photograph the screen of the cathode ray tube. This allowed accurate measurements of signal duration. Thus an accurate correlation of diffusion and altitude could be determined. The results showed that the duration of underdense-reflected signals were dependent only on wavelength and D , and that D was dependent only on altitude.

A common definition of duration used in meteor scatter studies is the time it takes from the beginning of a meteor burst to the time it takes to drop to $1/e$ of its peak signal strength ($1/e = 0.37$, approximately; $e = 2.718$ is a base figure used in natural logarithms). Chart #5 illustrates this definition of duration. Chart #6 shows the results of this experiment. The solid line shows the measured values, while the dotted line is the adopted curve. The diversion of the measured values is due to the fact that the received signals from higher altitudes are closer to the transition wavelength because of the increased diffusion (remember how D influences transition wavelength), and increased error creeps into the results. The solid line shows a logarithmic increase of D with height.

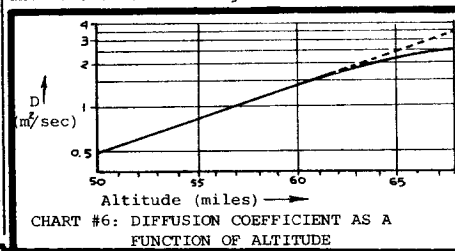
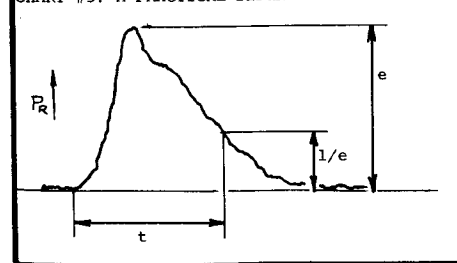


CHART #6: DIFFUSION COEFFICIENT AS A FUNCTION OF ALTITUDE

CHART #5: A PRACTICAL DEFINITION OF DURATION



REFERENCES:

Bain, Walter F.; "VHF Propagation by Meteor Trail Ionization," *QST*, 5/74; p.41
Greenhow, J.S. & Neufeld, E.L.; The diffusion of ionized meteor trails in the upper atmosphere, "*Jour. Atm. Terr. Phys.*"; vol. 6; pp. 133+
Manning, L.A.; Oblique echoes from overdense meteor trails, "*Jour. Atm. Terr. Phys.*"; vol. 14, pp. 82-93.
Pickard, G.W.; A note on the relation of meteor showers and radio reception, "*Proc. I.R.E.*", vol. 19, No. 7; p. 1166c.; July, 1931.

YAMAHA T-2 FM TUNER

by ARMAND DI FILIPPO

I thought you might be interested in learning about the Yamaha T-2 FM tuner. This tuner is unique in that it is very suitable for FM DXing.

What is truly amazing is its ability to gauge signal strength and interference factors including adjacent channel interference and to automatically switch to either a DX mode or local mode of operation. Mode selection determines IF bandwidth and RF gain. The user has certain defeat options over this automatic system plus important manual selections to enhance ideal reception over a wide variety of signal conditions. The signal quality meter measures signal strength, detects interference levels (measures S/N ratio in stereo), and multipath signals.

On the next page I have included an outline of the operating modes plus some important specifications relative to DXing.

COMMENTS

The reason for the apparent contradiction between HI-SENSITIVITY and HI-SELECTIVITY functions in the (C) and (D) modes as compared to their functions in the (A) and (B) modes is really quite simple when one understands the circuit operation. Let us remember this is a hi-fi mass market unit and as many functions as possible are kept automatic. (A) and (B) are the most automatically selected modes and since there is only one RF mode selector button with the dual function of choosing either HI-SENSITIVITY and HI SELECTIVITY, the internal switching of RF mode functions relative to their operation in (A) versus (D) eliminates any need for the user to do the same manually. However, for the DXer this can be very dis-orienting. It takes a lot of getting used to.

The (A) (B) (C) and (D) modes as indicated on the previous chart are the four major receiving modes. There are more. The FM DXer must understand the RF mode operation before he can master the others.

Regardless of the tuner's automatic selection of DX IF mode or Local IF mode and regardless of the user's manual defeat of the DX IF mode, the RF Mode Selector positions for HI-SENSITIVITY and HI-SELECTIVITY operate like this--

Weak signals relative to a pre-set reference value make the RF Mode Selector operate so that HI-SENSITIVITY equals a sensitivity reduction of 50%.

Strong signals relative to the same pre-set reference value make the RF Mode Selector operate so that HI-SENSITIVITY equals a sensitivity reduction of 50%.

As you can see the HI-SELECTIVITY and HI-SENSITIVITY selectors do not operate in the same manner for strong signals as compared to weak signals.

AUTOMATIC (auto SELECTION) DX	MANUAL SELECTION BY USER	MANUAL OPTION BY USER	USE
IF MODE-BANDWIDTH	RF MODE-SENSITIVITY	STEREO-MONO SELECTOR	MONO
DX-NARROW IF BANDWIDTH	HI-SENSITIVITY 1.5uV	MUTING ON-OFF	OFF
most often automatic DX selection			Normal DXing position. Maximum sensitivity. Narrow IF bandwidth. Mono selection affords best signal-to-noise ratio. Muting off assures reception of weak signals and digital display of all tuned frequencies. AFC circuit defeated when tuning knob is activated.
* (A)			DX position used when strong adjacent channel interference occurs. Retains narrow IF bandwidth but reduces RF gain to improve dynamic range. Selectivity is 100 dB!
DX-NARROW IF BANDWIDTH	HI-SELECTIVITY 3.0uV		MONO
* (B)			OFF
LOCAL-WIDE IF BANDWIDTH	HI-SENSITIVITY gain for moderate local or strong semi-local signal strength		STEREO or MONO
(C)			ON
LOCAL-WIDE IF BANDWIDTH	HI-SELECTIVITY gain for local reception		STEREO
most often automatic local selection			ON
* (D)			OFF
KEY * Automatic DX mode can be defeated by manual selection of local mode by user.	"Optimum Tuning System" When user touches tuning knob the AFC circuit turns off. After desired signal is dialed, local oscillator is automatically locked on. This system is used in conjunction w/signal & center meters	Signal Quality Meter measures:	Used for local reception of strong signals or when close to antenna tower. Offers widest dynamic range and maximum linearity.
		(1.) Signal Strength	
		(2.) Interference when mono is selected	
		(3.) S/N ratio when stereo is selected	
		(4.) Multipath signal when muting is turned off	

IMPORTANT SPECIFICATIONS:

- Usable sensitivity (IF 98 MHz, mono, 40 kHz deviation) for hi-sensitivity DX mode: 1.5 uV!!
- Alternate channel selectivity in DX hi-selectivity mode: 100 dB!!
- Image rejection (98 MHz): 120 dB!!
- Spurious signal rejection: 120 dB!!
- Signal-to-noise ratio: 38 dB (Lab measurement at 90 dB!!)
- RF intermodulation in hi-selectivity position: 100 dB.

The most important facts to remember for over-all DX operation is that the DX IF mode and Local IF mode selections alter both RF gain and IF bandwidth, while the RF mode selections of HI-SENSITIVITY and HI-SELECTIVITY maintain or reduce RF gain relative to that already selected by the DX IF mode or the Local IF mode.

What all this implies can best be illustrated by citing an example of a receiving mode other than the four major (A) (B) (C) or (D) modes.

Example: Signal strength is strong relative to the pre-set value but interference is encountered and detected by tuner. Automatically tuner switches to DX IF mode for narrow IF bandwidth.

Even though tuner is in DX IF mode, the HI-SENSITIVITY and HI-SELECTIVITY RF Mode Selectors do not operate in the same manner as in (A) and (B) DX IF modes. Since signal strength is strong relative to the pre-set value, HI-SENSITIVITY selection will reduce signal strength by 50%.

To carry this example out further to illustrate the numerous possibilities available, the user now defeats the DX IF mode by depressing the Local IF Mode Selector button.

The bandwidth becomes wide and signal attenuation occurs across the board. The HI-SENSITIVITY and HI-SELECTIVITY functions and values are now determined by the new level of signal strength relative to the pre-set reference value.

In practice this tuner perfectly and automatically adjusts bandwidth and RF gain to meet 98% of all listening and DX conditions! (The user merely has to manually select the MONO and MUTING-OFF positions when DXing)

Another 1% of the conditions encountered require manual selection of the RF mode and/or manual over-ride of the tuner's automatic selection of the IF mode with the tuner's front panel labeling of functions correctly indicated. This is no problem. Easy in fact.

It is the remaining 1% of conditions encountered that require the DXer's complete understanding of the tuner's IF mode and RF mode operations as outlined on the previous pages. These are very unusual DX situations.

Under actual operating conditions the tuner's sensitivity, selectivity, image rejection, signal-to-noise ratio, and dynamic range make it truly a state-of-the-art performer.

The Yamaha T-2 FM tuner is not cheap. It has a suggested retail price of \$750. With limited-selected dealerships, discount prices are hard to come by. The best mail-order outlet to discount high end esoteric units is "Direct Discounts Ltd.," P.O. Box 341, Cooper Station, New York City, NY 10276. They publish a catalog and quote current discount prices by phone: (212) 254-3125.

I would like to know if there are any other DXers owning this unit and what their impressions are concerning hands-on operation.

Armand Di Filippo
1825 South Rosewood Street
Philadelphia, PA 19145

TECHNICAL TOPICS



Q: "I'm using a Blonder-tongue VHF/UHF TV preamp which overloads severely on UHF when used with a four-bay UHF TV antenna. I'm five miles away from the four local UHF TV stations. Would using a smaller antenna cut down on overload, while allowing the preamp to bring in DX signals? The situation seems to be almost hopeless. Perhaps the gain of the preamp could be reduced somehow?"

A: Your problem is not uncommon, and the situation is far from hopeless. If you are really serious about wanting to get good UHF TV DX results, you'll have to make some equipment changes. First of all, with very strong local UHF stations on the air nearby, you're using the wrong kind of DX antenna. While a good four-bay UHF bowtie can offer a fair amount of gain, everything else about the antenna is wrong for DXing. Front-to-back ratio of this type of antenna is notoriously poor, and the nulls are equally bad. This is the reason you need a parabolic dish--the fact that you have very strong local signals on the air nearby makes the very deep nulls of a dish a practical necessity. Just by switching to at least a 5' dish, you should see a dramatic improvement in weak signal performance--especially on the higher channels, where most four-bays just can't "cut it." Secondly, the preamp you're using is not for any kind of serious DXing. It's a three stage "all channel" model that's hardly improving the overall UHF system noise performance. All the gain your preamp offers isn't doing much good for you--the noise figure is too high. You need a unit which is closer to the state-of-the-art--even if that means using one that has less gain. Try a low noise two stage UHF only preamp--the Winegard AC-4990 could be ideal for you. In many cases, DXers who were never able to use a preamp before, in a strong local UHF overload environment, have found that the two stage AC-4990 is the answer to their problems. The simpler design of the AC-4990 makes it far less susceptible to local UHF overload, while the low noise figure makes a "day-and-night" difference in system performance.

Q: "I've seen suggestions in the VUD to the effect that UHF traps might also be of use--I notice these are hard to find at electronics outlets. Do you think it would be worth the trouble ordering these directly from the factory--can they really help with a strong signal very close by?"

A: In a strong local overload situation on UHF, every little bit helps. Remember, putting a trap in the system ahead of the preamp has the effect of making that unwanted local signal seem just a bit "farther away" than it really is, and this can reduce some cross-modulation effects that can ruin DX in certain antenna directions. It also will help get rid of the nasty images caused by strong locals--it might not eliminate them, but could make them a little bit easier to live with.

Q: "What about using a trap after the output of the preamp power supply?"

A: That would be rather self-defeating. To do the most good to the DXer, a trap has to be mounted right at the antenna terminals, to reduce unwanted local signal as much as possible before it gets into the preamp. Most severe overload effects in a system using a preamp occur right in the preamp itself. Sometimes though, a DXer's UHF TV tuner can't cope too well with the preamplified local signals, and additional overload takes place right at the DX receiver. You can try experiments with a second trap between the power supply and TV antenna terminals to check for signs of TV tuner overload though. Some DXers have found that the newer varactor UHF tuners are very easily overloaded by antenna preamps, and a second trap may be of some use in these cases.

SPECIAL REPORT

ch A2 F₂ strikes again!

Mr. Pat Dyer, WACIX
3315 S. Loop Drive
San Antonio, Texas 78228

CST used

Feb 14, 1982: during an intense 50-MHz F₂ opening to the Caribbean and northern South America

- Ø=190
A(Bo)=42
- 0957 - what looked like half-frame color bars with the white-square under them (due to the multi-path ghosting unable to "count" the position)
 - 1015 - other station with programming now CCI to the CBars; original station begins programming but unable to read any printed material due to ghosting
 - 1022 - fading sets in rapidly and soon total loss

as in most previous events, the MUF did not reach the TV audio frequency. As before, the classical situation of multi-path and relatively slow fading were dominant. This time I did get a chance to take one 35-mm frame of the CBars.

THEN: an unusual resurgence 50-MHz F₂ opening to essentially the same regions as the morning event

- 1517 - rather fast fading multi-path programming without any audio; unidentifiable
- 1528 - CCI rather heavy (hi-offset pattern)
- 1540 - at least 2 strong signals with mixed programming
- 1544 - intense multi-path ghosting
- 1552 - rapid f/out

the fading on this was considerably deeper and more rapid than the morning event; the multi-path character and the lack of any audio MUF pretty well confirm it as being F₂ (along with the simultaneous 50-MHz events)

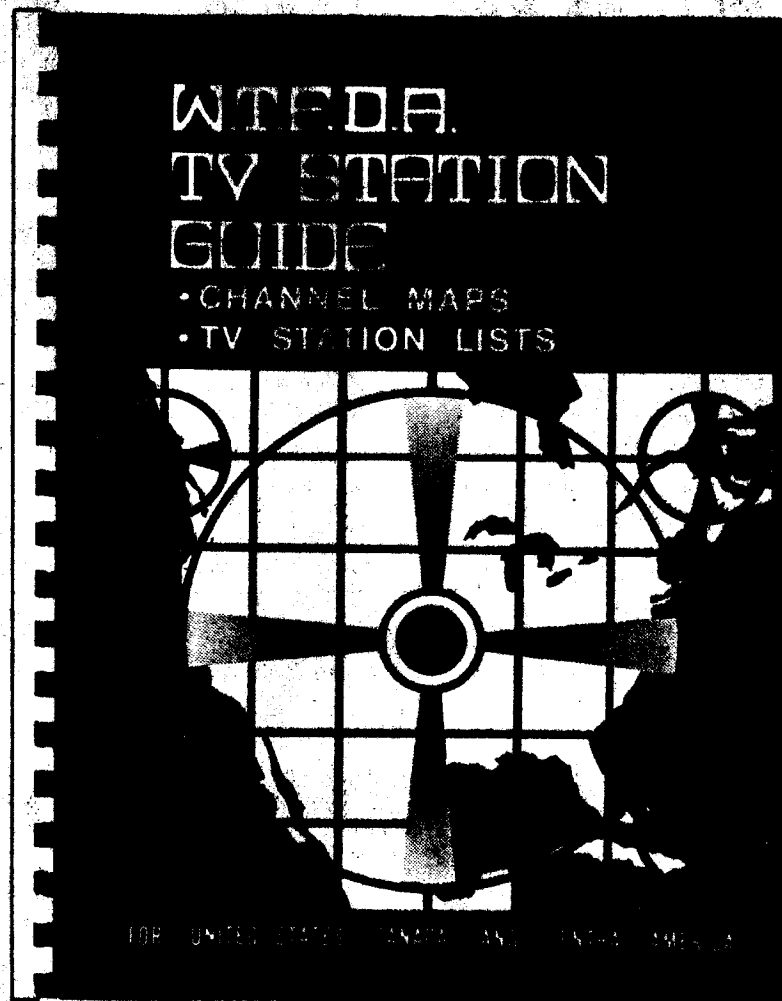
Feb 17, 1982: a relatively modest 50-MHz F₂ opening to the Caribbean and northern South America

- Ø=167
A(Bo)=28
- 0915 - (and prior) multi-path ghosting very evident; no audio; programming but unidentifiable
 - 0920 - rapid QSB onset
 - 0925 - almost the impression of some Es mixed in now
 - 0940 - rapid f/out

Feb 18, 1982: a protracted but not particularly intense 50-MHz opening to northern South America

- Ø=170
A(Bo)=18
- 1610 - multi-path ghosting, QSB; no audio
 - 1620 - possible mixed programming; unidentifiable
 - 1625 - rapid decrease in intensity
 - 1630 - complete f/out

The events of the 17th and 18th are not as completely clear-cut as those of the 14th. However, the concurrent 50-MHz openings along with the lack of audios and intense multi-path ghosting make them very likely to have been F₂ in nature.



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