

# THE WORLDWIDE TV-FM DX ASSOCIATION

*Serving the UHF-VHF Enthusiast*

THE VHF-UHF DIGEST IS THE OFFICIAL PUBLICATION OF THE WORLDWIDE TV-FM DX ASSOCIATION DEDICATED TO THE OBSERVATION AND STUDY OF THE PROPAGATION OF LONG DISTANCE TELEVISION AND FM BROADCASTING SIGNALS AT VHF AND UHF. WTFDA IS GOVERNED BY A BOARD OF DIRECTORS: DOUG SMITH, GREG CONIGLIO, BRUCE HALL, DAVE JANOWIAK AND MIKE BUGAJ.



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**JUNE 2004**



Finally! For those of you online with an email address, we now offer a quick, convenient and secure way to join or renew your membership in the WTFDA from our page at:

<http://fmdx.usclargo.com/join.html>

Dues are \$25 if paid to our Paypal account. But of course you can always renew by check or money order for the usual price of just \$24. Either way, it's still a bargain!

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Well, the skip is finally flying. There haven't been any major bang-up FM openings just yet, but they'll come. This month Bruce Elving supplies a few pages of recent translator info, we've got info on upcoming DX club conventions and Doug Smith wraps up his course on digital television.

Hope you all enjoy this issue!

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# The Mailbox

P.O. Box 501, Somersville, CT USA 06072  
MIKE BUGAJ MBUGAJ@SNET.NET

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JUNE 2004

It's back! I'm talking about E skip. Early May brought 50mhz openings in Europe and North America with a few of them reaching up to the FM band briefly. A good period in particular was May 10-12. A few newsworthy items are receptions by **Matt Sittel** of WKYC-DT 2 with a partial picture decode with the NBC peacock in the lower right of the screen plus a great screencatch of the PSIP ID on the Win TV D card, **Juan Gualda's** catches of RCN and Caracol (Venezuela and Colombia) plus Puerto Rico from his home in Ft. Pierce, and **Steven Wiseblood's** Es from Nicaragua.

Matt's reception of WKYT-DT is just the second DTV E-skip reception ever recorded (**Girard Westerberg** was the first one to do it last year). Matt was late for work that day but he didn't even care. You can't blame him.

## MEMBERS AND MORE

An official welcome goes out this month to **Peter Baskind** (TN) who joins the WTFDA after being on the WTFDA reflector for longer than I can remember. We all look forward to his 50mhz skip alerts and we're glad you decided to put c'mon in.

We have renewal checks received this month from **Milton C. Bay** (KY), **Fred Nordquist** (NY), **William Grant** (MA), **Jerry Bond** (NY), **George Mileon** (MA), **Eric Fader** (NY), **Steve Naetzker** (CA), **Peter Giacomelli** (NY), **Harry Helms** (CA), **Jacob Norlund** (MN), and **Ken Onyschuk** (IL). And thank all of you for your support of the WTFDA!

**Bill Grant** writes "No winter Es noted. Waiting for the next round to start. F2 on vacation for a few years." (Well, this round of Es is beginning. I hope those of us in the north have a good season. -Mike)

**Matt Sittel** talks about the upcoming convention: "Early arrivals are invited to a cookout Thursday night at the Sittel's house. Then on Friday we have a tour lined up at frequent skip catch KMTV-3, followed by a group dinner and business meeting Friday evening. Saturday will feature a WTFDA quiz, awarding of door prizes, and a barbecue buffet for our Saturday night banquet. We're still working on a few more things such as short lectures and presentations on all

aspects of DX. Of course in between there will be plenty of time to sit and visit with other attendees. We'll also be setting up antennas on site and will have HDTV and RDS receivers set up to demonstrate the latest technology. While I can't promise there will be DX, late summer can bring about all-day tropo as well as skip, which out here can come from both coasts! What I can promise is a great host location, the Park Plaza Regency Lodge, and a good time with your fellow WTFDA members.

We've already got half a dozen folks registered for the event, and you've got until June 30 to register. If you've never attended a WTFDA convention, you owe it to yourself to come on out and meet with fellow hobbyists. Why not make this the year you attend? If you have any questions, please get in touch with Mike or me.

## PART 15 DEVICES ON TV CHANNELS

**Peter Baskind** reports: "The FCC is now proposing using vacant TV channels for Broadband WiFi distribution. Unlike the dubious Broadband Over Power Lines (BPL), where "primary user" hams like me can complain and require the provider to fix potential problems, TV viewers will have no such standing, as non licensed users of the spectrum." (This is just wonderful news -M)

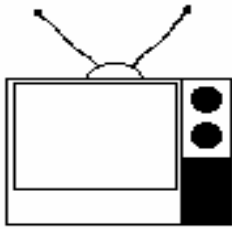
## E SKIP MAPS

With Es at our doors it would benefit every one of us who has a computer and is online to bookmark the following site: <http://www.egrabow.com/gallery/>. This is the location where you'll find maps of the US and Canada and some Mexico showing all skip stations from ch2 to ch6 with powers and network affiliation. These maps are a great aid and our hats are off to **Ryan Grabow** for publishing a truly informative website!

## WANT A DTV CARD?

Go to [www.tigerdirect.com](http://www.tigerdirect.com) or call 1-800-800-8300. They have the Hauppauge Win TV D card for \$99. Do a search on the website for "Hauppauge" for the details. I doubt you'll ever see a better price.

Take care and see you next month. -Mike



# TV News

Douglas E. Smith  
 1389 Old Clarksville Pike  
 Pleasant View, TN  
 37146-8098  
[w9wi@w9wi.com](mailto:w9wi@w9wi.com)  
<http://www.w9wi.com>

**June 2004**

Abbreviations:

AF	Applied For (a new station)	PG	Power change granted
Aux	Auxiliary (backup) transmitter	PR	Power change requested
CC	Callsign change	QC	Channel (?frequency??) change on the air
CL	City-of-license change	QG	Channel change granted
DE	License/permit deleted	QR	Channel change requested
FC	Programming (?format??) change	RE	Reinstated (previously-dismissed app.)
FTP	Failure to Prosecute	ROA	Request of Applicant
GA	Granted amendment (to table of channel allotments)	SI	Off the air (?silent??)
LC	License to Cover	STA	Special Temporary Authority
NS	Permit granted for new station	XC	Transmitter site changed
NW	New station on the air	XG	Transmitter site change granted
PA	Proposed Amendment	XR	Transmitter site change requested
PC	Power (and/or tower height) change on the air		

News:

(full-power analog stations in **bold face**; LPTV and translators in regular type; full-power digital stations in **bold italics**)

Alabama:

Decatur 51 WYAM-LP QG fm ch. 16  
**Louisville 44 WGIQ-DT NW 925kw/262m**  
**Opelika 31 WSWS-DT PR<150kw/539m, 32-19-16/84-47-28**  
**Tuscaloosa 5 WCFT-DT NW 9.5kw/625**

Alaska:

Anchorage 23 NEW-LP AF dismissed

Arizona:

Cottonwood 51 K51HV QG from K58AV  
 Kingman 20 K20ID QG from K55GG, 790w  
 Littlefield 48 NEW-LP AF dismissed  
 Peach Spring 21, NEW-LP AF dismissed  
 45  
 Phoenix 43 K43GV PG<9kw, 33-20-01/112-03-44  
 Prescott 20 NEW-LP RE AF 5kw, 34-42-52/112-31-33  
 Tacna 23 NEW-LP AF dismissed

Arkansas:

Bentonville 26 K14IT QR dismissed ROA  
 Bentonville 26 K26HB PG>150kw; CC from K14IT  
 El Dorado 61 K61HQ XR 33-48-10/92-26-10; QG fm K46DT, 150kw  
**Fort Smith 21 KHBS-DT NW 325kw/602**  
 Springdale 4 KJBW-CA QR from ch. 15, 3kw dismissed

California:

Arcata 26 K26HM NS 25kw,

41-05-58/  
 124-07-35  
 Arroyo Grande 20 KSSY-LP QG from ch. 56, 20kw, 35-06-25/120-30-58  
 Bakersfield 6 NEW-LP AF dismissed  
 Bakersfield 34 KJOI-LP PG>150kw, 35-25-47/118-44-56  
 Bakersfield 47 K47IA PG>150kw, 35-26-17/118-44-22  
 Banning 55 K55JW PG>8.5kw; PR>10kw, 34-11-16/117-41-54  
 Caliente 43 K43IR NS 22kw, 35-15-21/118-37-39  
 Chico 28 KKPM-CA PG<129kw, from zero offset to plus  
 Chico 32 K32GM NS 1kw, 39-45-18/121-44-13  
 Daggett 46 K46HT QC from K44DV  
 Eureka 35 KEAZ-LP PR>50kw, 40-43-36/123-58-18; already granted  
 Glen Arbor 26 KBKF-LP PG>20kw, 37-06-40/121-50-29; PR>22kw, 36-45-23/121-30-05; CC from K26HN  
 Holtville 30 K56GC QR from ch. 56, 3.4kw; CL from El Centro-Holtville  
 Joshua Tree 17 K17GJ CC from K57EV  
 Maricopa 38 KNXT-LP QG from ch. 57, 150kw

Morongo Vly. 40 K40HX QG from K62AO  
**Oxnard 63 KBEH-TV CC from KADY**  
Palm Desert 43 K43IW NS 7.26kw,  
33-38-55/  
116-33-34  
Palm Springs 7 NEW-LP AF dismissed  
Palm Springs 29 K29GA NW 60w, 33-49-  
00/116-43-10;  
PR>6.6kw,  
33-45-20/  
116-43-18  
Redding 2 K02QA QG from K56ID,  
410w, 40-39-19/  
122-31-22; NW  
Redding 42 K42GE PR>150kw  
Redding 46 K46HI NW 3kw,  
40-39-16/  
122-31-13  
Redding 58 K58IF NS 29.3kw,  
40-39-16/  
122-31-13  
Ridgecrest 45 K45GQ QC from K69AS,  
2.38kw  
**Sacramento 3 KCRA-TV PC>600m**  
Salinas 3 KMMD-CA PG>540w  
San Diego 24 K61GH QR from ch. 61,  
125kw, 32-50-  
24/ 117-14-52;  
CL from National  
C.  
San Francisco 28 KFTL-CA PG>90kw  
**San Mateo 60 KCSM-TV CX**  
**Santa Ana 23 KTVN-DT NS 50kw/900m**  
Santa Barbara 28 K28GY QC from K55AP,  
74.3kw  
Sonoma 43 NEW-LP AF dismissed  
Stockton 22 KDTS-CA PR>50kw  
dismissed; PR>5  
Twentynine 29 K29GK QG from K65AR,  
Palms 4kw  
Ukiah 19 KDSL-CA CC from K19FN  
**Colorado:**  
Aspen 50 K50IF AF dismissed  
(so why calls  
issued?)  
Aspen 50 K50IN QG from  
K03DW, 1.4kw  
Basalt 36 K36GX PG<80w  
Estes Park 49 K49IB PR>150kw  
Estes Park 61 K61AA PG>150kw,  
40-15-56/  
105-33-37; XR  
39-54-48/  
105-17-33; PG  
Genoa 44 NEW-LP AF dismissed  
**Grand 17 KRMJ-DT PG<65kw/409m**  
**Junction 39-03-58/  
108-44-43**  
Hartsel 20, K20IC, QG from K68AR  
23 K23GZ & K70FL, 3.4kw  
Loveland 45 K45GR QG from K63AB,  
46.9kw,  
40-38-31/  
104-49-05; CL  
from Estes Park  
Pagosa Springs 31 K31FS QC from K62AP,  
1.3kw  
Pagosa Springs 40 K40GE QC from K54DH

Redstone 9, K09XN, XG 39-14-20/  
11 K11VC 107-13-02  
Vail 45 K45IE XR 39-36-18/  
106-21-23  
Windsor 36 K36HG PG>150kw, CL  
from Estes Park  
Woody Creek 39, K39HE, PG<60w,  
44 K44GQ 39-18-37/  
106-56-53

**Connecticut**

Darien 69 WNYZ-LP QR from ch. 33  
dismissed; QR  
to ch. 35  
dismissed  
New Britain 35 WVIT-DT NW  
205kw/434m  
**New Haven 39 WCTX-DT NW 170kw/301**  
**Norwich 9 WEDN-DT PA from ch. 45**  
**Delaware:**  
Rehoboth Beach 59 W59DZ NS 1kw,  
38-44-53/  
75-11-00 (TBN)

**Seaford 44 WDPB-DT PG>98kw**

**District of Columbia:**

**Washington 34 WUSA-DT PC>1000kw, DA**

**Florida:**

Clearwater 26 WXAX-LP PR<50kw,  
27-50-52/  
82-15-48  
Fort Myers 14 WTPH-LP PG>127kw,  
26-43-36/  
81-47-14  
Gainesville 8 WNFT-LP PG>3kw,  
29-38-08/  
82-19-35  
**Gainesville 36 WUFT-DT NW 1000kw/263**  
Inglis/ 47 WYKE-LP XR 28-53-02/  
Yankeetown 82-31-20; XG  
**Jacksonville 13 WTLV-DT NW 25kw/310m**  
Jacksonville 15 WJXE-LP XR 30-16-51/  
81-34-12; CL  
from Lake City;  
PG>150kw,  
30-16-32/  
82-04-46  
**Key West 8 WVIB PR<2.65kw/56m**  
**24-33-18/  
81-48-05**  
**Key West 12 WVIB-DT PR>210w/56m,**  
**24-33-18/  
81-48-05**  
Lake City 33 W33CI PG>150kw,  
30-15-28/  
82-10-48;  
XR 30-16-51/  
81-34-12; CL to  
Maxville; XG  
Mayo 32 NEW-LP AF dismissed  
Miami 49 W49CL QG from  
W54BB, 75kw,  
25-58-15/ 80-12-  
32; CL from  
Rock Harbor  
Miami 56 WEYS-LP FC; Almavision  
**Orlando 14 WRDQ-DT PG>182kw/477**  
Panama City 8 W08DZ NS 3kw,  
30-12-13/  
85-36-57  
Panama City 17, W17CG, FC to religion

26, W26BV,  
36, W36BU,  
41, W41CP,  
69 W69DH  
Panama City 34 W34DH QG from  
W54CU, 22.1kw  
Port Richey 18 W18DB PR<2kw; PG  
Rock Harbor 50 W54BB QR from ch. 54  
dismissed  
Sarasota 5 W05CO QG from  
W34AW, 3kw  
Tampa 26 WXAX-LP PG<50kw,  
27-50-52/  
82-15-48; CL  
from Clearwater  
Tampa 30 WTAM-LP PG<68.9kw  
Tampa-St. 20 WARP-CA PR>150kw  
Petersburg  
Trenton 58 NEW-LP AF dismissed  
**Georgia:**  
**Atlanta** 10 **WXIA-DT** **NW 80kw/303m**  
Atlanta 26 WANX-LP PG>51.8kw  
**Augusta** 6 **WJBF** **PC>495m,**  
**33-24-20/**  
**81-50-01**  
Savannah 43 W43CK QG from  
W57CT, 36.5kw  
**Hawaii:**  
Honolulu 46 KHLU-LP QC from ch. 60,  
11.93kw  
Kahului 38 K38IE NS 50kw,  
20-46-43/  
156-14-51  
**Kailua** 50 **KKAI** **NW 83.2kw/632,**  
**21-19-49/**  
**157-45-24**  
Lihue 52 K52JG NS 15kw,  
21-59-59/  
159-24-55  
Lihue 52, NEW-LP RE AF 15kw,  
54 21-59-59/  
159-24-55  
**Waimanalo** 56 **KMGT** **PR<19kw/340m2**  
**1-19-23/**  
**157-40-53**  
**Idaho:**  
Georgetown 15 K15GO QG from K57IA,  
330w, 42-30-07/  
111-20-31  
Grangeville 46 K46HX QG from K59BA  
Idaho Falls 54 K54JF NS 41kw,  
43-45-44/  
111-57-30  
Lava H.S. 14 K14MC QG from K59BV  
Lewiston 51 K51HY QG from K55HZ,  
360w  
Malad 31 K31HS NW 1.2kw,  
42-04-50/  
112-12-29  
Pocatello 41 NEW-LP AF dismissed  
ROA  
Preston 21, K22DV, QC from chs. 22,  
23 K36AD 36  
Preston 42 K42GN NW 1.8kw,  
41-53-00/  
112-04-42  
Priest Lake 42 K42GT QG from  
K57CW  
Rexburg 43 K43JD NS 79w,  
43-45-19/

Salmon 49 K49IC QG from K57CI  
Soda Springs 49 K49HU NS 1.135kw,  
42-37-48/  
111-41-00

**Illinois:**

Galesburg 51 W51DT QG from  
W50BY, 17.8kw  
**Joliet** 53 **WGBO-DT** **NW 180kw/401**  
Peoria 50 W41BO QC from ch. 41,  
37.7kw,  
40-33-29/  
89-34-05  
Rochelle 33 W33CH XR 42-01-12/  
88-22-53  
Rochelle 48 W48DH PG>150kw,  
42-04-28/  
88-49-24;  
XR 42-01-12/  
88-22-53  
Rochelle 61 W61DT PG<22kw, 41-  
48-27/88-16-06;  
PR>38kw, 41-  
53-56/87-37-23  
(John Hancock  
Center,  
Chicago); PG;  
PR>50kw

**Indiana:**

**Bloomington** 48 **WTTV-DT** **GA from ch. 53**  
**n**  
**Gary** 17 **WYIN-DT** **NW 300kw/290**  
Indianapolis 47 WBXI-CA PR>117.4kw,  
39-53-25/  
86-12-20  
Jeffersonville 9 WVHF-LP QR from ch. 5,  
3kw

**Iowa:**

Davenport 44 K44HL QG from  
K61HD, 20kw  
Knoxville 21 K21EM XG 41-13-35/  
92-44-48; CL  
from Ottumwa  
Sioux City 51 K38DU QC from ch. 38,  
50.1kw

**Kansas:**

Dodge City 41 K41II NS 50kw,  
37-45-58/  
100-02-03  
Topeka 32 NEW-LP AF dismissed  
Wichita 51 KSMI-LP PG<14.1kw,  
37-41-53/  
97-19-10; PC

**Kentucky:**

Jamestown 2 W02CO NS 350w,  
37-09-29/  
85-09-50

**Paducah** 32 **WPSD-DT** **NW 906kw/492**

**Louisiana:**

Monroe 22 KMNO-LP PG>150kw  
Monroe 33 NEW-LP AF dismissed  
New Orleans 30 K30ID QG from  
W52DE, 43.9kw,  
29-58-41/  
89-56-26; CL  
from Meridian,  
Miss.  
Tullos 44 K44HN FC; sold to  
KEJB

**Maine:**

Bangor	47 W47CU	NS 1kw, 44-33-52/ 69-36-37	Natachez(sic) 53 NEW-LP Natchez 44 W44CE	AF dismissed FC; sold to KEJB
Bangor	22 WFVX-LP	PR>150kw	Starkville 32 W32DB	NS 500w, 33-27-06/ 88-50-46
<b>Biddeford</b>	<b>26 WMEA-TV</b>	<b>PC&lt;133kw/231</b>	<b>Vicksburg 35 WUFX</b>	<b>NW 5000kw/253</b>
Portland	15 WLLB-LP	FC; Daystar		<b>32-19-35/ 90-37-03 (Fox)</b>
<u><b>Maryland:</b></u>			<u><b>Missouri:</b></u>	
Lake Shore	69 W69EH	PG>150kw, 38-37-28/ 75-53-20; XR 38-58-02/ 76-15-30; CL from Salisbury	Anderson 53 K09VM	QR from ch. 9, 50kw
Salisbury	24 W24CW	PG>150kw, 38-40-00/ 75-35-00	Chillicothe 46 K46HP	NS 1kw, 39-49- 09 /93-32-53
Salisbury	51 W51DR	PG>150kw, 38-17-05/ 75-39-55	Columbia 32 K32GR	QG from K11SN, 143.2kw, 38-47-28/ 92-17-43
<u><b>Massachusetts:</b></u>			Jefferson City 38 K38II	QG from K11TB, 143.2kw, 38-47-28/ 92-17-43
Boston	24 WFXZ-CA	PR>90kw	Kansas City 45 K26CR	QR from ch. 26, 150kw
<b>New Bedford</b>	<b>49 WLNE-DT</b>	<b>PR&gt;284m, DA</b>	Kirksville 4 K04PX	NS 100w, 40-15-42/ 92-34-49
<b>Vineyard Haven</b>	<b>58 WDPX</b>	<b>PC&gt;1665kw/ 153m</b>	St. Louis 40 KUMO-LP	CC from K40FF
<u><b>Michigan:</b></u>			<u><b>Montana:</b></u>	
<b>Cadillac</b>	<b>47 WFQX-DT</b>	<b>PR&gt;393m, 44-44-53/ 85-04-08</b>	Big Sky 46 K46IA	NS 50kw, 45-22-21/ 111-43-38
<b>Cheboygan</b>	<b>35 WTOM-DT</b>	<b>NW 78kw/168m</b>	<b>Billings 16 NEW-DT</b>	<b>PA by KUSM-9</b>
<b>Detroit</b>	<b>14 WKBD-DT</b>	<b>PR&gt;200kw</b>	<b>Butte 5 KXLF-DT</b>	<b>PR&gt;10.7kw/576</b>
<b>Flint</b>	<b>66 WSMH</b>	<b>PR&gt;1750kw/362 43-13-31/ 84-04-33</b>	Glasgow 30 NEW-LP	AF dismissed
Gladstone	51 W51DP	NS 1kw, 45-51- 49 /87-02-17	<b>Great Falls 21 NEW-DT</b>	<b>PA by KUSM-9</b>
<b>Lansing</b>	<b>51 WLAJ-DT</b>	<b>NW 900kw/300</b>	Polson 14 K14LT	QC from K05EE, 250w, 47-40-39 /114-08-30; CL from Big Arm
St. Ignace	34 NEW-LP	AF dismissed	Polson, 16, K16GJ, Rollins 41 K41IW	QG from K07HG & K60AL, 250w, 47-40-39 /114- 08-30
<u><b>Minnesota:</b></u>			Wolf Point 29 K29FS	NW 840w, 48-02-06/ 105-31-12
Alexandria	14 K14LZ	QG from K36AA, 1.56kw	<u><b>Nevada:</b></u>	
Brainerd	30 K57BJ	QR from ch. 57	Las Vegas 41 K41IO	QG from K57FA
Little Falls	18 K18GF	PR<15.21kw, 45-59-03/ 94-19-57 dismissed; PG<1.5kw, 45-56-58/ 94-17-45	Las Vegas 43 K43FO	XC 36-00-36/ 115-00-20
Minneapolis	25 K25IA	QG from K58BS, 100kw	Pahrump 30 K30HX	NS 50kw, 36-11-24/ 116-06-59
Minneapolis	31 W62BD	QR from ch. 62, 150kw	<b>Reno 27 KREN-TV</b>	<b>PR&gt;2600kw/894</b>
Rochester	43 NEW-LP	AF dismissed	Verdi 30 K15CT	QC from ch. 15, 800w
Wabasha	40 K57CN	QR from ch. 57, 10.4kw, 44-22- 12 /92-04-47	Verdi & 30 K30HY Mogel	QC from K15CT, 800w
<u><b>Mississippi:</b></u>			<u><b>New Jersey:</b></u>	
Bradley	55 W55DL	NS 999w, 33-13-08/ 88-58-48	Cherry Hill 41 WNAI-LP	QG from ch. 68, 140kw, 40-02-30 /75-14-11
<b>Greenwood</b>	<b>6 WABG-TV</b>	<b>drops DA</b>	<u><b>New Mexico:</b></u>	
<b>Jackson</b>	<b>9 WLBT-DT</b>	<b>GA from ch. 51; PR&lt;15kw/535m dismissed; PR&lt;7kw/393m instead</b>	Arrey & Derry 34 K34FU	CC from K67BG
<b>Magee</b>	<b>34 KRBU</b>	<b>NS 3000kw, 32-07-18/ 89-32-39; CC</b>	<b>Carlsbad 25 KTEL-TV</b>	<b>PR&gt;113kw</b>
			Carrizozo 48 K48GY	CC from K57CF
			Clovis 4 NEW-LP	AF dismissed
			Clovis 16 K16EX	QC from K55AM, 16.4kw

Farmington Grants	43 K43AI 58 K58HX	PG<9.33kw XR 35-35-07/ 108-11-49; CL fm Sheep Springs	<b>36-32-54/ 76-11-16</b>
<b>Hobbs</b>	<b>47 NEW-DT</b>	<b>Window opens for NS 4/23/2004- 5/24/2004</b>	Manteo 45 W45CL NS 10.8kw, 35-51-52/ 75-39-01
Hobbs	52 KHLC-LP	XR 32-42-34/ 103-09-07; XG	Raleigh 36 W36DC QG from W64CN, 10kw
Las Vegas	20 K20GQ	QC from K58AZ, 1.18kw, 35-36- 16 /105-15-35; CL fm Nolan/Wooton	Rocky Mount 33 WHIG-LP PR>9.8kw Rocky Mount 45 W45CN QG from W66DK, 8.3kw
Montoya & Newkirk	17 K17FK	CC from K55CV	Statesville 21 W21CI QG from W66BT, 9kw, 35-48-15/ 80-53- 30
Portales	14 K14KO	CC from K58FW	Wanchese 23 W23CR NS 1kw, 35-50- 48 /75-37-19
Quemado	15 K15FS	QG from K02GB, 160w, 34-19-47/ 108- 34-41; QC	<b>Wilmington 44 WECT-DT NW 575kw/280, 34-19-16/ 78-13-43</b>
Red River	15 K15FV	QG from K03CZ, 40w; already on	<b>North Dakota:</b>
Roswell	50 K50IA	QG from K30HI, 5.4kw	Bismarck 48 NEW-LP AF dismissed
Santa Rosa Sheep Springs	38 K38HR 58 K58HX	CC from K62CU PG>150kw	<b>Devils Lake 25 NEW-DT Window opens for NS 4/23/2004- 5/28/2004</b>
Truth Consequenc es	or 25 K25HV	CC from K54CC	<b>Fargo 44 KVLV-DT QR from ch. 58, 414kw/543m</b>
<b>New York:</b>			<b>Jamestown 18 KJRR-DT PA from ch. 14</b>
<b>Albany 7 WXXA-DT QR from ch.4, 10kw/434m, 42-37-31/ 74-00-38</b>			<b>Ohio:</b>
Auburn	15 WNNY-LP	PG<8.1kw; CL from Moravia	<b>Athens 27 WOUB-DT NW 250kw/242</b>
<b>Bath 14 870331LW NS 1000kw/318, 42-18-28/ 77-13-17</b>			<b>Bowling Green 20 WBGU-DT PA from ch. 56 withdrawn</b>
Brooklyn	3 W03BM	QC from W38CL, 750w, 40-44-46/ 73-58- 52	Columbus 8 WGCT-CA CC from WINJ- LP
Cobleskill New York	41 W41CV 6 WXNY-LP	PG>9.2kw QR from ch. 32, 3kw	Lima 38 WLMO-LP FC to CBS
<b>New York 11 WPIX NS 25.2kw/300 (aux)</b>			<b>Shaker Hts. 19 WOIO PR&lt;3700kw</b>
Ogdensburg <b>Plattsburgh 3 NEW-LP AF dismissed 38 WCFE-DT PR&gt;737m; NW 100kw/721m</b>			<b>Toledo 19 WTVG-DT NW 795kw/222</b>
<b>Plattsburgh 57 WCFE-TV PR&lt;462kw/737 Utica 30 WUTR-DT NW 50kw/227m</b>			<b>Oklahoma:</b>
<b>North Carolina:</b>			Lawton 3 NEW-LP AF dismissed (interference to KFDX-3)
Asheville	50 W50CZ	QG from ch. 69, 21kw	Oklahoma C. 19 KUOT-CA PR>23.7kw
Charlotte	16 W16CF	QG from W52CW, 44.8kw	Sayre 26 K26EU PG>9.9kw
Fayetteville	45 W45CO	QG from W66DF, 41.5kw	Tulsa 45 KLOT-LP QG from ch. 25, 25kw
Goldsboro	35 W35BZ	QG from W63CW, 18.3kw	<b>Oregon:</b>
<b>Greenville 9 WNCT-TV PC&gt;575m</b>			Astoria 39 K39HO NS 24.5kw, 46-17-10/ 123-53-50 (KWBP-32)
Lumberton	35 W35CC	QG from W67DU, 27kw	Bend 49 K49HX NS 1kw, 43-58- 55 /121-20-02
<b>Manteo 4 WSKY-DT AF 10kw/274m,</b>			Glide 24 K24FH CC from K68BG
			Klamath Falls 25 K25IB QG from K56EW, 13kw, 42-05-56/ 121- 38-02
			Klamath Falls 48 K48HV PG<7.24kw (corrects typo of 7244kw!)
			Lincoln City 50 K50IK CC from K59HY
			Madras/ Culver 30, K30IC, QG from K56BV/ K58BK/ K63CC/ K69BI, , 2kw (1.7kw on ch. 45)
			Medford 32 K32DY PR<11kw, 42-17-54/ 122-44-57; PG
			Sunriver 23 K23FS CC from K62AJ

The Dalles	18 K61BX	QR from ch. 61, 1.2kw	Big Wells	25, NEW-LP	AF dismissed 29
Tolo	3 K03EI	XG 42-22-41/ 122-50-43	Corsicana	22 KNAV-LP	QR from ch. 30, 150kw
<b><u>Pennsylvania:</u></b>			Crockett	45 K45HZ	NS 10kw, 31-14-39/ 95-19-53
<b><u>a:</u></b>			De Leon	38 K38IO	NS 3kw, 32-10- 55 /98-31-52
Freedom	31 WWBP-LP	QG from ch. 25, 29kw	Denison	7 K07XZ	NS 500w, 33-52-20/ 96-28-12
Sayre	24 W52CE	QR from ch. 52, 17.5kw	<b>El Paso</b>	<b>65 KTFN</b>	<b>PC&lt;2637kw</b>
<b><u>South Carolina:</u></b>			Floydada	24 K24GL	NS 22.5kw, 33-59-02/ 101-17-30
<b>Charleston</b>	<b>2 WCBD-TV</b>	<b>PR&gt;599m</b>	<b>Greenville</b>	<b>46 KTAQ-DT</b>	<b>NW 600kw/496, 32-32-36/ 96-57-32</b>
<b>Charleston</b>	<b>35 WMMP-DT</b>	<b>PR&lt;46kw/583m</b>	Harper	17 K17GZ	NS 7.5kw, 30-20-29/ 99-13-23
<b>Charleston</b>	<b>36 WMMP</b>	<b>PR 1000kw/583, 32-56-24/ 79-41-45</b>	<b>Kerrville</b>	<b>32 KRRT-DT</b>	<b>NS 1000kw/531</b>
<b>Charleston</b>	<b>49 WITV-DT</b>	<b>NW 400kw/521</b>	Kress & Tulia	41 K41CA	PC<930w, 34-32-12/ 101-44-25
<b>Charleston</b>	<b>50 WCBD-DT</b>	<b>PR&gt;581m; PG</b>	Louise	50 K50HN	PG>150kw, 29-12-07/ 96-14-57
<b>Columbia</b>	<b>47 NEW</b>	<b>NS 750kw, 34-02-38/ 80-59-51</b>	Lufkin	53 KLSB-LP	CC from K53IQ
Johnston	46 W46DO	QG from W56EE	Mason	34 K34HW	NS 2.5kw, 30-47-08/ 99-18-40
<b>Myrtle Beach</b>	<b>32 960920WV</b>	<b>sold to WIS-10</b>	McCamey-Rankin	50 K50ED	XG 31-12-42/ 102-16-14; XC
<b>Sumter</b>	<b>27 WRJA-TV</b>	<b>PG&lt;647kw</b>	<b>Odessa</b>	<b>9 KWES-TV</b>	<b>PG&gt;391m, 31-59-17/ 102-52-41</b>
<b><u>South Dakota:</u></b>			Odessa	20 KTLE-LP	QC from K60EE
<b>Aberdeen</b>	<b>17 KDSB-DT</b>	<b>PR&lt;36kw, DA</b>	Pampa	34 K34HU	NS 10kw, 35-32-46/ 101-00-02 (TBN)
<b>Brookings</b>	<b>18 KESD-DT</b>	<b>PR&lt;38kw, DA</b>	Paris	13 K13YP	NS 1kw, 33-38- 46 /95-31-35
<b>Eagle Butte</b>	<b>25 KPSD-DT</b>	<b>PR&lt;31kw, DA</b>	Plainview	17 NEW-LP	AF dismissed
<b>Lowry</b>	<b>15 KQSD-DT</b>	<b>PR&lt;24kw, DA</b>	<b>Port Arthur</b>	<b>40 KBTB-DT</b>	<b>PG&gt;1000kw/ 360m</b>
<b>Martin</b>	<b>23 KZSD-DT</b>	<b>PR&lt;39kw, DA</b>	<b>San Antonio</b>	<b>58 WOAI-DT</b>	<b>PR&gt;776kw/457</b>
<b>Pierre</b>	<b>21 KTSD-DT</b>	<b>PR&lt;34kw</b>	Seminole	21 K21FV	QC from K55IF, 6.8kw
<b>Sioux Falls</b>	<b>23 KCSD-TV</b>	<b>PC&gt;84.7m, 43-34-28/ 96-39-19</b>	Sherman	34 K34HQ	NS 10kw, 33-40-48/ 96-35-05
<b><u>Tennessee:</u></b>			Smith Hill	13 K13YN	NS 150w, 33-30-24/ 94-12-26
Acton	69 W69DB	PG>150kw	Texarkana	5 K05LQ	NS 500w, 33-35-06/ 94-02-28
Chattanooga	36 WCNT-LP	QG from ch. 65, 64.4kw, 35-22- 49 /84-42-45	Texarkana	66 K66GF	NS 150kw, 33-35-06/ 94-02-28
Chattanooga	58 W58DO	QG from W26BE, 11.3kw	Tulia	25 K25CP	PC<960w, 34-32-12/ 101-44-25
Holladay	62 W62CJ	XG 35-49-15/ 88-10-08; CL from Jackson	Uvalde	42 K42GJ	QG from K59EY, 9.99kw, 29-22- 08 /99-20-58; QR 8.15kw, 29- 37-11 /99-02-55
<b>Knoxville</b>	<b>30 WVLT-DT</b>	<b>NW 398kw/551, 35-59-44/ 83-57-23</b>			
Lawrenceburg	13 WLLP-CA	PG>3.5kw, 35-08-06/ 87-22-31			
<b>Memphis</b>	<b>10 WKNO</b>	<b>PC&lt;324m</b>			
Moscow	64 W64BZ	PR<80kw, 35-05-43/ 89-23-07; CL from Jackson; PG			
<b><u>Texas:</u></b>					
Amarillo	41 KEYU-LP	PG<123kw, 35-20-33/ 101-49-20; CC from K41GY			
Amarillo	50 KAMT-LP	QR from ch. 31, 150kw, 35-20-33 /101-49-20			
Amherst	48 K48JC	NS 10kw, 33-58-18/ 102-19-59			
Austin	11 KQUX-CA	PC>1kw			
<b>Austin</b>	<b>33 KVUE-DT</b>	<b>NS 1000kw/376</b>			



Victoria 42 K42GO NS 9.89kw,  
28-49-01/  
97-03-58

**Wichita Falls 28 KFDX-DT PG>1000kw/  
305m**

**Utah:**  
Brian Head 47, K47JF, NS 75w, 37-41-  
51 K51HQ 25 /112-49-45  
Delta & Oak 51 K51GG QC from  
City K54DW, 2kw,  
39-21-12/ 112-  
21-06  
Duchesne 34 K34FV CC from K06MT  
Enterprise 34 K34FW CC from K55CH  
Fruitland 29 K29EZ CC from K59EL  
Garrison 46 K46GG QC from K55GN  
Henefer & 38 K38HW NW 260w,  
Echo 40-58-40/  
111-26-08  
Mount 22 K22FW QC from K57HK,  
Pleasant 1.8kw, 39-32-22  
/111-23-17  
Myton 19 K19EY, CC from K63CB,  
K21FT, K69DE, K67CK,  
K25HH, K65CL, and  
K27GN, K61CF  
K41GT  
Park City 56 K56IQ NS 710w,  
40-51-18/  
111-28-44  
Price 17 K17GT NS 380w,  
39-31-47/  
111-03-04  
(KUWB-16)  
Roosevelt 38 K38GO, QC from K19CZ,  
K47HA, K23DR, K53BB,  
K48GZ, K55DG, 1.12kw  
K50GO  
Samak 3 K03HQ NS 72w, 40-37-  
56 /111-15-30  
Santa Clara 36 K36FT CC from K57BG  
St. George 33 K33GE CC from K59AG  
Tropic & 27 K27ID NS 600w,  
Cannonville 37-42-40/  
112-04-39  
Vernal 6 NEW-LP AF dismissed

**Vermont:**  
**Hartford 31 WNEE PC<1820kw/684**  
St. Albans 49 W52CD QR dism. ROA

**Virginia:**  
Central 19 W19CW QG from  
Rockingham W21AC, 2.2kw  
Co.  
Charlottesville 13 W13DD NS 1.5kw,  
e 38-16-30/  
78-27-37  
**Charlottesville 19 WCAV CC for NS**  
**e**  
**Charlottesville 32 WVIR-DT PR>369m**  
**e**  
Charlottesville 64 WVAW-LP CC from W64AO  
e  
Honaker 51, WAPV-LP CC from  
55 W51AD, W55AK

**Richmond 57 WCVW PR<50kw**  
**Richmond 26 WRLH-DT PR>328m**  
Yorktown 19 WYSJ-CA PG>150kw

**Washington:**  
Grays River, 38 K38GS QC from K67BJ  
Lebam

Longview 28, K28IH, NS 2.2kw,  
31 K31HK 46-10-55/  
122-57-00  
Spokane 43 K14IF PR<2.2kw,  
47-34-45/  
117-17-51  
Spokane 32 K32GS QG from K55EB,  
10.2kw

**West Virginia:**  
**Charleston 11 WVAH-TV PG 52.4kw/524,  
38-24-28/  
81-54-13**  
**Charleston 19 WVAH-DT PR>514m,  
38-34-28/  
81-54-13**  
**Huntington 34 WPBY-DT NW 60.1kw/378**  
Martinsburg 50 W44AA QC from ch. 44,  
11.5kw  
**Parkersburg 15 WTAP-TV PC 220kw/192m**  
**Parkersburg 49 WTAP-DT NW 47.4kw/193**

**Wisconsin:**  
Fence 45 W45CD PG>2.1kw, QG  
from no offset to  
plus  
**Green Bay 42 WPNE-DT NW 200kw/375**  
**Kenosha 40 WPXE-DT NW 830kw/358,  
43-05-44/  
87-54-17**  
**La Crosse 30 WHLA-DT NW 308kw/351**  
**Menomonie 27 WHWC-DT NW 200kw/350**  
Milwaukee 38 W38DT QG from  
W53CC, 34.5kw,  
43-05-15 /87-54-  
13; CL from  
Ludington, Mich.  
**Milwaukee 6 WITI PR>240m (aux)**  
**Park Falls 47 WLEF-DT NW 200kw/244**  
Sister Bay 18 W18CU PR>5.16kw; PG;  
QC  
Wausau 3 W03BN NS 250w,  
44-57-52/  
89-39-45

**Wyoming:**  
**Cheyenne 11 KKTU-DT NW 16kw/650m,  
40-32-47/  
105-11-50**  
Cheyenne 14 K14LV NS 3kw,  
41-08-17/  
104-47-30 (TBN)  
Hulett 58 K58IE NS 999w,  
44-41-49/  
104-37-07  
Laramie 14 K14LK XR 41-17-17/  
105-26-42;  
PG<11kw,  
41-14-16/  
105-27-48  
Rawlins 26 NEW-LP AF dismissed

  
Canada:  
**British Columbia:**  
**Vancouver 33 CIVT-DT NS 900w/740  
49-21-29/ 122-  
57-09**

**Guam:**  
**Agana 5 KGTF-DT PG>8.26kw/  
75m, DA**

**Ontario:**

**Hamilton** 15 CKXT-DT- NS 8.6kw/193  
1 43-12-27/  
79-46-28

Hamilton 45 CKXT-TV- NW 19kw/193  
1 43-12-27/  
79-46-28

Leamington 34 CFTV-TV NS 400w/61m  
42-02-30/  
82-36-24

London 14 CITS-TV-2 NS 883w/268  
42-57-20/  
81-21-20

Ottawa 32 CITS-TV-1 NS 7.2kw/142  
45-13-01/  
75-33-51



**Puerto Rico:**

Mayaguez 26 NEW-LP RE AF 19.94kw,  
18-19-06/  
67-10-49

**Ponce** 14 WTIN **FC; sold to  
WAPA-4**

**Ponce** 19 WKPV-DT **PG<700kw/  
269m, DA**

**Yauco** 41 WIRS-DT **PR>185kw/  
832m**



**U.S. Virgin Islands:**

Christianstd. 15 WVIF **CC fm WCAV;  
to be Fox**

Thanks to Jeff Kruszka, Bill Draeb, Charles Gauthier, Mike Bugaj, and Dennis Smith for information appearing elsewhere in this month's column.

TBN has sold a number of their duplicate new construction permits to Prism Broadcasting:

Charlotte Amalie, V.I.	W50CQ
Vidalia, GA	W59DS
Glasgow, KY	W57DO
Albert Lea, MN	K67HL
Cleveland, MS	W34CT
Starkville, MS	W61DQ
Cambridge, OH	W60DD
Durant, OK	K50GT
McAlester, OK	K61HM
Hereford, TX	K33GH
Chippewa Falls, WI	W61DM
Rhineland, WI	W44BZ

A few items of special interest this month. KCSM-60 has lost the lease on their analog transmitter site. They've requested permission to turn in their analog license and go digital-only. KCSM's analog transmitter was on the Mt. San Bruno tower farm south of the city; their digital is on Mt. Sutro.

Well, it was bad enough for NYC DXers when they managed to shoehorn in a channel 3 station in Brooklyn. Now, they've done it again. WXNY-LP has applied to move from channel 32 to channel 6, with 3kw. If approved, there would be no open low-band channels in New York City...

## DTV RECEPTION #2



Matt Sillel (NE) comes through this month with only the second DTV E skip reception ever noted.

This screenshot from his computer shows program 1 and program 2 info. Also notice in the partially decoded picture, part of the NBC bug in the lower right side of the picture.

The station is WKYC-DT, channel 2 in Cleveland running 296kw, seen on May 12, 2004 at 8:01am local time. A Win TV D card was used for this reception.

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**ABBREVIATIONS:**

AFA: American Family Association  
CC: call letter change  
CL: city of license change  
CX: a construction permit has been cancelled  
C1, C2, etc.: a change in status to that FM license class  
DA: directional antenna  
DE: station has been deleted  
FC: format change  
GA: granted amendment to the table of FM allocations  
GE: granted extension of construction permit  
GX: granted replacement of expired permit  
LC: license to cover filed (ready to come on the air)  
MC: multiple-city ID  
NC: no change yet on a reported change or permit  
ND: non directional antenna  
NO: not on the air

NS: new station granted  
NW: new station signs on  
OSA: one step application granted for change  
PA: proposed amendment change to FM allocation table  
PC: power change on the air (> = increase, < = decrease)  
PG: power change granted (> = increase, < = decrease)  
QC: frequency changed occurred  
QG: frequency change granted  
RA: silent stations returns to the air  
RE: station requests an extension on permit  
RX: station requests replacement of expired permit  
SC: slogan change or update  
SI: station is silent  
SOA: signed on air  
XA: dismissed amendment to FM allocations  
XC: transmitter site change occurred  
XG: transmitter site change granted

**ALABAMA:**

Ashland: WTRB-FM 98.3, GA from Sylacauga  
Atmore: WYDH 105.9, FC to classic country, CC to WDXZ  
Brookwood: WRTR 105.9, PG>25kw/82m, 33-14-17/87-29-06; CL from Tuscaloosa  
Bryant: WWFC-LP 99.9, NW ?w/137m, 34-52-33/85-35-18  
Coaling: WFFN 95.3, GA from Cordova  
Cordova: WQOP-FM 92.5, GA from Dora  
Dothan: WDYF 90.3, PG>171m, 31-19-29/85-36-06  
Hackleburg: WFMH-FM 95.5, GA from Holly Pond  
Hobson City: WASZ 95.5, GA from Ashland  
Holly Pond: WRSA 96.9, GA from Decatur  
Homewood: WBPT 106.9, CL granted from Birmingham  
Killen: WKSR-FM 98.3, GA class A->C3, from Pulaski, TN  
Lannett: WRNK-LP 96.3, NW 100w/2m, 32-52-05/85-11-28  
Linden: WNPT-FM 102.9, PR 29kw/197m, 32-40-50/87-24-22  
Midfield: WBHJ 95.7, GA from Tuscaloosa, from Class C1 to C2  
Orrville: WJAM-FM 97.3, PG<125m  
Scottsboro: WKEA-FM 98.3, GA from class A to C3, PR>12kw/146m, 34-31-57/85-55-07  
Thomaston: WAYI 97.7, RA simulcasting WALX 100.9, Hot AC "Lazer 101"

**ALASKA:**

Nome: KICY-FM 100.3, PR>1kw/-104m, 64-30-11/165-24-36

**ARIZONA:**

Camp Verde: KAJM 104.3, PR>86kw/600m; CL from Payson  
Fountain Hills: KLVK 89.1, PC>2.5kw-V/285m  
Gilbert: KEDJ 103.9, PR>99.6kw  
Kingman: KFLG-FM 94.7, PR 43kw/790m

Lake Havasu City: KLHA 89.3, calls for new station

**ARKANSAS:**

Earle: KCJF 103.9, PC 12.5kw/143m, 35-27-01/90-42-11  
Gentry: KOZR-LP 102.9, PG 31m, 36-15-16/94-29-38  
Vilonia: KASR 92.7, PR>25kw/100m, 35-03-26/92-04-16; CL from Conway  
West Helena: KIHV-LP 107.7, NW ?w/59m, 34-31-48/90-36-46

**CALIFORNIA:**

Arcata: KCHP-LP 97.1, NW 100w/-41m, 40-52-32/124-05-21  
Bakersfield: KFRB 91.3, PR>2.8kw-V  
Chico: KPLS-LP 105.9, calls for new station  
Corning: KTHU 100.7, PA class B, from C1  
Crescent City: KCRE-FM 94.3, PR>25kw/-47m, 41-45-35/124-11-28  
Essex: KHWW 98.9, PG>9kw/348m  
Fresno: KJWL 99.3, PC>14.5kw/105m  
Fortuna: KWPT 100.3, FC to classic hits "The Point"  
Grass Valley: KCEE 103.3, signs on with Salem's talk programming "K-Talk", PC>530w/336m  
Hemet: KXRS 105.5, PR 6kw/85m, 34-01-41/116-58-40  
Hollister: KHRI 90.7, PG>170w  
Johannesburg: KEDD 103.9, RA with Spanish hits "Radio Exitos"

Lompoc: KSMY 106.7, FC to regional Mexican  
Los Molinos: KCEZ 102.1, NW 25kw/81m, 39-53-16/122-37-38  
Modesto: KEJC 93.9, corrects tower coordinates to 37-39-00/121-01-24 and power to 3.95kw  
Mt. Shasta: KMJC-FM 107.9, PR>20kw/249m, 41-13-37/122-14-23  
Oxnard: KCRU 89.1, PC>850w  
Pacific Grove: KAZU 90.3, PC 3.4kw/168m  
Quincy: KHGQ 100.9, PA from 100.3

Redondo Beach: KZAB 93.5, PC 3.4kw/132m, 33-51-35/118-20-56  
Ridgecrest: KWTB 91.9, PR 6.6kw/404m

**San Jacinto:**  
KWRP 96.1, CC to KWIE, PC 1.4kw/209m, 34-02-13/116-58-07  
**Santa Barbara:**  
KFAC 88.7, CC to KQSC

Thousand Oaks: KCPB 91.1, CC to KDSC  
Willows: KCHC 106.3, PR<400w/34m, 39-31-25/122-10-07  
Yuba City: KXCL 103.9, PG 25kw/100m, 39-02-43/121-28-41  
Yuba City: KRYC-LP 105.9, NW 100w/7m, 39-07-34/121-39-09

#### COLORADO:

Aspen: KSPN-FM 103.1, PR>10.5kw/319m, 39-09-09/106-49-09  
Dolores: KTCF 89.5, PG>66m, 37-27-38/108-30-29  
Eaton: KLCQ 88.9, NW 640w/-1m, 41-08-17/104-47-30  
Grand Junction: KBKL 107.9, PR>470m  
Grand Junction: KMXV 104.3, PR>470m  
Kremmling: KRKM 106.3, CC to KKHI  
Salida: KHEN-LP 106.9, XR 38-32-30/105-59-11  
Westcliffe: KWMV-LP 95.9, PR>-46m, 38-08-04/105-27-41  
Yuma: KNEC 100.9, PG<23kw

#### CONNECTICUT:

Ledyard: WCSE-LP 100.1, PG 68m, 41-25-00/72-02-41

#### DELAWARE:

Dover: WIHW-LP 96.1, calls for new station

#### DISTRICT OF COLUMBIA:

Washington: WRQX 107.3, PC 19.5kw/246m

Washington: WGMS-FM 103.5, AF 10kw/131m, 39-02-32/77-02-49 (aux)

#### FLORIDA:

Apalachicola: WFCT 105.5, PG 45kw/159m  
Brooksville: WRRR-LP 102.7, CC to WKJO-LP  
Collier Co. Rest Area: WFLP-LP 98.7, NW 100w/29m, 26-10-02/81-04-40  
Fort Meade: WWRZ 98.3, PR>11.5kw/311m, 27-50-15/81-56-53  
Glen St. Mary: WFBB-LP 100.3, NW 100w/27m, 30-16-17/82-09-46  
Graceville: WTOT-FM 101.7, PR>25kw, 30-59-55/85-42-16  
Holt: WTKE 98.1, PR<147m, 30-24-38/86-37-22  
Inglis: WIFL 104.3, PR>25kw/95m, 29-02-10/82-42-40  
Marathon: WAVK 97.7, PC>50kw-H/49kw-V/65m, 24-46-02/80-56-42  
Mcintosh: WIMR-LP 96.5, NW 100w/30m, 29-26-57/82-13-36  
Melbourne: WBVD 95.1, PC 4.3kw/118m, 28-08-15/80-42-11  
Miles City: WFLU-LP 107.9, NW ?w/31m, 26-09-40/81-20-58  
Miramar Beach: WSBZ 106.3, PC>6kw  
Naples: WSRX 89.5, PC>100kw  
Palm Bay: WEJF 90.3, PC>100w-H/10kw-V/123m  
Panama City Beach: WVVE 100.1, PC>12kw/123m  
San Carlos Park: WNRW 98.5, FC to country "US 98.5", CC to WUSV  
Seaside: WTHA-LP 107.1, NW 100w/24m, 30-19-23/86-08-31  
St. Catherine: WKFA 89.3, PR>90m, 28-32-22/82-04-48

#### GEORGIA:

Ambrose: WKAA 97.9, GA from 97.7 Ocilla

Atlanta: WSB-FM 98.5, GA from class C to class C0

Blackshear: WKUB 105.1, PC>50kw  
Bowdoin: WMAX-FM 105.3, NW 70kw/307m (aux)  
Canton: WPCG-LP 107.9, NW ?w/33m, 34-18-25/84-30-59  
Dublin: WQZY 95.9, PG>100kw  
Glennville: WOA 106.3, PC 4kw/121m, 31-51-18/81-44-28  
Milledgeville: WKZR 102.3, PR>6kw/100m  
Quitman: WSTI-FM 105.3, FC to top 40 "Mix 105.3", PC>25kw/97m, 30-38-23/83-26-52  
Savannah: WZAT 102.1, PC>456m, 32-03-37/81-20-40  
Statesboro: WMCD 100.1, CC to WMZD  
Waycross: WASW 91.9, PR>18kw/88m, 31-16-13/82-39-19  
Yates: WWBM 89.7, NW 1kw/98m, 33-27-47/84-53-35

#### HAWAII:

Haliimaile: KPMW 105.5, PC>14kw/134m, 20-44-32/156-18-48  
Keaau: KBGX 105.3, PR 22.5kw-H/5.7kw-V/28m, 19-43-18/155-27-23

#### ILLINOIS:

Cairo: WBEL 88.5, PR>64kw-V/170m, 36-59-32/88-59-19  
Carthage: WCEZ 93.9, PC>100m  
Clinton: WHOW-FM 95.9, PR>6kw  
Johnson City: WDDD-FM 107.3, request CL from Marion

Milford: WJCY 91.3, PR<25kw/27m, 40-35-07/87-57-47  
Okawville: WIBV 102.1, GA from Mt. Vernon  
Peoria: WWKJ-LP 102.9, NW 100w/11m, 40-54-

44/89-30-11

Shelbyville: WHBW-LP 93.7, CX, DE  
Virden: WCVS-FM 96.7, PC>6kw, 39-38-02/89-48-50

#### INDIANA:

Cicero: WJCY 91.5, PR<250w-V/51m  
Columbia: WSHI 106.3, PC>5.6kw/104m, 41-12-49/85-12-04  
Corydon: WGZB-FM 96.5, PG>6kw/100m  
Evansville: WCFY-LP 102.7, calls for new station  
Fishers: WGRL 93.9, PC 2.95kw/145m, 39-49-39/85-58-51

Kokomo: WJJD-LP 101.3, calls for new station

Ligonier: WNRL-LP 105.9, NW ?w/39m, 41-25-55/85-34-59  
Mitchell: WVEG 102.5, CC to WNUF  
Montpeiler: WJCO 91.3, PR<350w-V/60m  
Oolitic: WXVW 88.9, PR 5.2kw-V/78m, 38-59-14/86-27-31  
Seymour: WQKC 93.7, PC<24.5kw-V (remains

25kw-H)

Spencer: WSKT 97.7, PR>6kw/100m, 39-10-32/86-42-29  
Sullivan: WNDI-FM 95.3, PC>6kw/100m

#### IOWA:

Alair: KDDI-LP 102.9, NW ?w/47m, 41-29-47/94-38-29  
Bettendorf: KORB 93.5, CC to KQCS  
Charles City: KQOP-LP 94.7, NW 100w/-3m, 43-03-54/92-40-20  
Clear Lake: KLKK 103.7, PR 6.2kw/199m, 43-10-04/93-06-04  
Davenport: KTJT-LP 102.7, calls for new station  
De Soto: KSDE-LP 104.7, NW 100w/16m, 41-32-07/94-00-18  
Des Moines: KJMC 89.3, PC 7.1kw/61m, 41-39-21/93-35-51  
Pocahontas: KWFF-LP 95.3, NW 100w/10m, 42-43-59/94-40-05

#### KANSAS:

Bronson: KBJO 88.3, PR>36kw/116m  
Dodge City: KVPC-LP 100.5, NW ?w/50m, 37-45-19/100-00-59  
Emporia: KANS 99.5, QR to 96.1

Shawnee: KMAJ-FM 107.7, PR<275kw, 39-00-45/95-01-46; CL from Topeka (move into KC market)

Wichita: KZZD 90.7, CC to KYWA, FC to Way FM contemporary Christian

**KENTUCKY:**

Georgetown: WRVG-LP 93.7, calls for new station  
Hopkinsville: WHOP-FM 98.7, PG>189m, 36-55-41/87-32-50  
Jenkins: WIFX-FM 94.3, PG>6.3kw/410m, 37-09-59/82-37-13  
Owensboro: WIMM-LP 107.7, NW 100w/28m, 37-43-39/87-03-15  
Williamsburg: WCCR-LP 94.7, NW 100w/15m, 36-44-07/84-09-46  
Williamsburg: WNLW-LP 95.1, NW 100w/30m, 36-44-40/84-10-25

**LOUISIANA:**

Baker: WJNH 107.3, CC to WTGE  
Belle Chasse: KMEZ 102.9, PR 18.5kw/91m  
Chalmette: WRQZ-LP 103.7, calls for new station  
Jackson: WNXX 104.5, PR 3kw/144m, 30-44-44/91-07-32  
Jonesville: KTGTV 105.1, PG 900w/249m, 31-40-08/91-41-30  
Lake Charles: KBXG 99.5, PR<311m, 30-17-26/93-34-35

LaPlace: WCKW-FM 92.3, XG 29-57-09/90-43-26  
Sulphur: KKGB 101.3, PR 12kw/146m, 30-14-41/93-20-37

**MAINE:**

Auburn: WMEK-FM 99.9, CC to WTHT

**MARYLAND:**

Crisfield: WBEE 96.9, PG 1.4kw/113m, 38-01-45/75-45-05  
Frederick: WJTM 88.1, PR 1kw/340m, 39-29-31/77-30-00

**MASSACHUSETTS:**

East Harwich: WXLJ-LP 97.7, NW 100w/27m, 41-42-56/70-00-32  
Hyannis: WCOD-FM 106.1, PG>50kw  
South Yarmouth: WOCN-FM 103.9, PC>5.5kw/104m  
Springfield: WAQY 102.1, NS 30kw/24m, 42-04-25/72-31-28 (aux)  
Worcester: WAAF 107.3, CL to Westborough now on air

**MICHIGAN:**

Bear Lake: WCUZ 100.1, PR 1.1kw/166m, 44-30-54/86-06-53  
Benton Harbor: WVBH-LP 105.3, NW 100w/16m, 42-07-06/86-26-59  
Coopersville: WCXT 105.3, PR 50kw/146m, 43-15-41/86-02-01; CL from Hart  
Crystal Falls: WOBE 100.7, XC 45-49-16/88-02-34  
Detroit: WGPR 107.5, PC>124m  
Grand Rapids: WVGR 104.1, PG>219m, 42-39-18/85-31-38  
Kalamazoo: WCAC-LP 92.7, calls for new station  
Mount Pleasant: WQOS-LP 98.9, NW 100w/22m, 43-35-28/84-45-50  
Onsted: WAAQ 88.3, XG 42-03-33/84-12-54  
Pentwater: WWKR 94.1, requests CL from Hart

Pinconning: WSAG 104.1, PC 4.6kw/99m, 43-43-30/83-56-50  
Standish: WWCM 96.9, PA to 106.9 dismissed, class A  
West Branch: WAWB-LP 107.3, NW 100w/21m, 44-16-39/84-12-23  
White Star: WEJC 88.3, PG>50w-H/80kw-V

**MINNESOTA:**

Ada: KRJB 106.3, PR>50kw/85m  
Breezy Point: KLKS 104.3, AF 70w/126m (aux)  
Duluth: KDAL-FM 95.7, PC<221m, 46-47-15/92-07-21  
Park Rapids: KDKK 97.5, PG>194m, 46-55-51/95-00-27  
Sebeka: KOPJ 89.3, calls for new station

**MISSISSIPPI:**

Coldwater: WVIM-FM 95.3, PC>3.6kw/129m  
Greenville: WIXP-LP 107.9, calls for new station  
Gulfport: WGCM-FM 102.3, PG>50kw/120m

Hickory: WGTC 91.3, calls for new station  
Okolona: WACR-FM 103.9, PG<120m, 34-12-18/88-41-49; CL from Columbus  
Port Gibson: WATU 89.3, PR<8kw-V, 32-07-56/90-45-29  
Port Gibson: WRTM-FM 100.5, PR>50kw/150m, 32-00-00/90-59-20  
Yazoo City: WYAZ 89.5, PR>25kw-V/158m, 32-48-04/89-56-32

**MISSOURI:**

Birch Tree: KBMV-FM 107.1, PC>25kw, 36-56-03/91-43-07  
Bowling Green: KPVR 94.1, PC 7.5kw/180m, 39-15-45/91-04-09  
Cuba: KESY 107.3, XG 38-02-43/91-30-08  
Farmington: KSEF 89.9, PG 9.5kw/195m, 37-47-57/90-33-43  
Hannibal: KJIR 91.7, PC>12kw/174m, 39-41-54/91-29-48  
Lexington: KMJK 107.3, PR>361m  
Marshfield: KNLM 91.9, PC 1.75kw/76m, 37-19-01/92-57-51  
Osceola: KCVJ 100.3, PC>6kw/86m, 38-03-43/93-33-24  
Otterville: KCVK 107.7, PR 2.5kw/152m, 38-39-21/92-54-27  
St. Louis: KEZK 102.5, GA from class C-> class CO  
Stockton: KRLK 107.7, PR<850w/35m, 37-41-50/93-45-59

**MONTANA:**

Arlee: KJFT 90.3, calls for new station  
Bozeman: KOFK-LP 98.3, calls for new station  
Hardin: KRWS-LP 100.7, calls for new station  
Kalispell: KANB-LP 102.3, calls for new station  
Montana City: KBSG-LP 106.3, calls for new station  
Polson: KMDM-LP 105.9, QR from 107.9  
Shelby: KFAS-LP 95.3, PG 34m, 48-29-37/111-53-21  
Whitehall: KESW-LP 106.5, calls for new station

**NEBRASKA:**

Bennington: KRQC 93.3, CC to KHUS  
Grand Island: KKLK 88.3, PG 1.7kw/45m, 40-54-50/98-23-52  
Mitchell: KOSJ 89.5, calls for new station  
Omaha: KIOS-FM 91.5, AF 55kw/183m (aux)  
Omaha: KGOR 99.9, PG<370m, 41-18-29/96-01-36

**NEVADA:**

Sparks: KLRH 88.3, NW 1.8kw/880m, 39-45-38/119-27-59

**NEW HAMPSHIRE:**

Bartlett: WJSK-LP 101.1, NW 100w/-15m, 44-07-17/71-12-16  
Dublin: WFCB-LP 100.3, PG ?w/132m, 42-53-58/72-07-16  
West Keene: W240AM 95.9, CX, deleted (interference on WZID/95.7 Manchester)

**NEW JERSEY:**

Burlington: WPST 97.5, GA from Trenton  
Canton: WJKS 101.7, PG 800w/195m, 39-25-51/75-20-13  
Eatontown: WHTG-FM 106.3, PC 1.1kw/161m, 40-16-41/74-04-51

**NEW MEXICO:**

Alamogordo: KKBO 107.9, calls for new station  
Albuquerque: KFLO 91.5, PC<20kw/1232m  
Belen: KVLK 91.1, QC to 90.7, PR<1.6kw/198m, 34-47-55/106-48-59  
Los Alamos: KZNM 106.7, PR>45.3kw/577m, 35-46-49/106-31-34  
Portales: KSEL-FM 95.3, QR to 105.9; PR>100kw/165m, 34-11-34/103-16-44  
Rio Rancho: KVVF 101.7, FC to smooth jazz "The Horizon", CC to KAJZ  
Santa Fe: KAJZ 105.1, CC to KKRK and goes silent

Socorro: New 89.5, NS 100kw/99m, 34-16-37/106-54-08 (K-Love)

**NEW YORK:**

Binghamton: WHWK 98.1, PC 6.7kw/395m, 42-03-40/75-56-45  
Binghamton: WSKG 89.3, PC>11.5kw/317m, 42-03-40/75-56-46  
Buffalo: WBFO 88.7, PR>117m  
Frankfort: WKLL 94.9, FC back to modern rock "K-Rock"  
Kingston: WKXP 94.3, PC>2.25kw  
Kingston: WKHV-LP 103.9, NW 100w/6m, 41-55-07/73-59-15  
Lake Luzerne: WBAR-FM 94.7, PG>940m/253m  
Oneida: WMCR-FM 106.3, PG>1.25kw  
Saranac Lake: WSL 90.5, PC>600w/107m  
Southold: WBEA 101.7, PR>5.5kw  
Wellsville: WJQZ 103.5, PG>1.75kw

Wethersfield Twp: WNSA 107.7, simulcasting WGR-550

**NORTH CAROLINA:**

Aurora: WFPF 104.5, CC to WSTK  
Chapel Hill: WCOM-LP 103.5, XR 35-53-22/79-03-59  
Charlotte: WYLI-LP 93.7, NW ?w/-3m, 35-06-04/81-03-26  
Elizabethtown: WDJL-LP 93.7, PG 43m, 34-38-40/78-38-21  
Greensboro: WOZN 98.7, PC>375m, 35-56-42/79-51-45  
Lenoir: WSER-LP 100.1, NW 1w/314m, 35-54-25/81-29-22  
Lincolnton: WWGT-LP 100.9, NW ?w/1m, 35-27-50/81-16-29  
Stanley: WVEM-LP 100.5, calls for new station  
Washington: WBOB-FM 93.3, CC back to WERO  
Windsor: WIAM-FM 98.9, CC to WNBR  
Winston-Salem: WFEC-LP 103.1, calls for new station

**NORTH DAKOTA:**

Devil's Lake: KZZY 103.5, PC<138m, 47-58-49/99-03-11  
Dickinson: KPAR-LP 103.3, NW 100w/-3m, 46-53-12/102-47-02  
Minot: KSAF-LP 104.1, calls for new station

**OHIO:**

Bellefontaine: WPKO-FM 98.3, PC 1.75kw/131m, 40-22-05/83-44-02

Bellevue: WOHF 92.1, PC>6kw/100m, 41-14-19/82-50-16  
Kettering: WLQT 99.9, NS 8.2kw/112m, 39-43-36/84-12-23 (aux)  
Mount Sterling: WSWO 102.3, PA from Wilmington, class A  
Newark: WJFY-LP 104.3, NW 100w/30m, 39-58-18/82-24-45  
Oxford: WOXY 97.7, FC to modern rock "X97-7"

West Carrollton: WDPR  
88.1, PR 600w/238m,  
39-43-16/84-15-00

**OKLAHOMA:**

Grandfield: KWKL 89.9,  
NW 11kw-V/152m, 34-  
16-19/98-25-30  
Healdton: KICM 97.7,

PC 10kw/156m, 34-20-57/97-27-24

Okarche: KTUZ-FM 106.7, AF 13kw/285m, 35-36-49/97-52-19 (aux)

**OREGON:**

Astoria: KJAC 88.7, CC to KLOY  
La Grande: KTVR-FM 90.3, NW 400w/774m, 45-18-35/117-43-57  
Lakeview: KOIK-FM 93.5, PG 1kw/303m, 42-12-19/120-19-37  
Monmouth: KSND 95.1, PC 1kw/477m, 44-53-19/123-36-26  
Newport: KWPB-LP 98.7, PG<18m, 44-38-57/124-03-08

**PENNSYLVANIA:**

Avoca: WAMT 103.7, CC to WFEZ, PC<6kw/22m, 41-18-20/75-45-38  
Dallas: WCWQ 93.7, CC to WSJR  
Ellwood City: WJST 92.1, PR 2.5kw/156m, 40-46-09/80-16-56  
Erie: WMCE 88.5, PC>750w/152m, 42-05-25/79-56-37  
Erie: WXKC 99.9, AF 9.7kw/117m, 42-03-21/80-02-24 (aux)  
Gap: WOMB-LP 92.9, CC to WGCP-LP  
Greensburg: WSSZ 107.1, CC to WJJJ  
Hazleton: WBSX 97.9, PC 6.3kw/407m, 41-10-56/75-52-22  
Pittsburgh: WBZZ 93.7, SC to "B93-7"  
Pittsburgh: WORD-FM 101.5, NS 28kw/158m (aux)

**SOUTH CAROLINA:**

Bamberg: WWBD 95.7, PR>7.6kw/164m, 33-24-49/81-00-59  
Clemson: WCCP-FM 104.9, PR>4.6kw/113m, 34-38-13/82-42-30  
Greenville: WPLS-LP 95.9, NW ?w/33m, 34-55-13/82-26-17  
Hilton Head Island: WIAR-LP 100.5, NW ?w/32m, 32-09-14/80-45-36  
Murrells Inlet: WYEZ 94.5, PG 12kw/145m, 33-33-13/79-13-14

Newberry: WWPZ-LP 95.9, NW  
?w/43m, 34-16-27/81-46-05  
Seneca: WHZT 98.1, PR>459m,  
34-34-00/82-58-50  
Sumter: WICI-FM 94.7,  
PC>8.1kw/174m, 34-02-56/80-  
12-51

Williston: WAAW 94.7, PC 2.55kw/155m, 33-30-31/81-37-27

**SOUTH DAKOTA:**

Flandreau: KKHG 107.9, CC to KWSF  
Huron: KZKK 105.1, PG>50kw/150m, 44-11-39/98-19-05

**TENNESSEE:**

Colonial Heights: WRZK 95.9, PC 7.4kw/382m  
Knoxville: WUOT 91.9, PR 63.9kw/534m, 36-59-44/83-57-23  
Lenoir City: WKZX 93.5, FC to country (Knoxville)  
Pulaski: WKSJ-FM 98.3, PR>25kw/100m, 35-00-35/87-21-30  
Spencer: WSPE-LP 93.1, XR 35-43-38/85-28-04  
St. Joseph: WJOR 101.5, PR>4kw/123m, 34-56-01/87-32-59  
Walden: WTRZ-FM 103.9, QR from 103.7, 25kw/92m, 35-07-33/85-17-25; CL from McMinnville (enters Chattanooga market)

**TEXAS:**

Abilene: KGNZ 88.1, PR<5kw/73m, 32-28-37/99-44-56  
Beaumont: KQOK 107.9, PR>90kw/596m, 30-01-01/94-32-47  
Belton: KOOC 106.3, CC to KQXB  
Borger: KDSH-LP 105.1, calls for new station  
Burnet: KBey-FM 92.5, PG 1.8kw/184m, 30-44-29/98-19-05  
Cameron: KHTZ 94.3, CC to KNVR  
Dallas: KEGL 97.1, FC to AC "Sunny 97.1"  
Denton: KHCK 99.1, CC to KFZO  
Elgin: KKL 92.5, PG>3.5kw/134m, 30-13-07/97-24-03  
Fort Worth: KTCU-FM 88.7, PC>10kw/90m  
Graham: KWKQ 94.7, FC to classic hits  
Hondo: KRIO-FM 98.5, CC to KMFR  
Iowa Park: KIXC 100.9, PA from Quanah, class C3  
Jasper: KWYX 102.7, PG>50kw/150m  
La Porte: KVST 103.7, PR>100kw/590m, 29-56-09/94-30-38; CL from Willis

Lumberton: KOBT 100.7, PA from Winnie, class C  
Navasota: KMBV 92.5, CC to KHTZ  
Pasadena: KFTG 88.1, PR>58m  
Pearsall: KRIO 104.1, FC to Spanish Hits "Digital 104.1" (San Antonio)

Pittsburg: KKXI 91.1, PR>1.57kw-V/61m, 32-57-48/94-53-54  
Plainview: KJTV-FM 97.3, CC to KSTQ-FM

Port Arthur: KTJM 98.5, PR>100kw/596m, 30-01-01/94-32-47

San Angelo: KELI 98.7, FC to soft AC "K-Lite"  
Stanton: KFRI 88.1, PR>139m, 32-05-44/101-48-47  
Sterling City: KCSE 96.5, FC to Spanish hits "Que Buena 96.5"  
Stephenville: KEQX 89.7, PR>6kw-V/150m, 32-07-24/97-58-48  
Victoria: KXBJ 89.3, PR 9.5kw/115m, 28-46-20/96-57-17  
Weatherford: KYQX 89.5, PG>4.5kw/158m, 32-51-05/98-06-31  
Wichita Falls: KBZS 106.3, PC>50kw  
Winfield: KLNA-LP 94.3, PC>27m, 33-09-37/95-05-13  
Winnie: KLTO 105.3, PA from Crystal Beach, from class A to C2  
Wolfforth: KAIQ 95.5, PR 100kw/206m, 33-31-03/101-51-24

#### UTAH:

Delta: KMGR 95.9, PG>293m, 39-43-58/111-56-34  
Logan: KBLQ-FM 92.9, PC>100kw/63m  
Monticello: KAAJ-LP 103.5, PR<-52m, 37-52-43/109-20-25  
North Ogden: KNKL 88.7, NW 7.3kw-V/300m, 41-35-30/112-14-57  
Ogden: KKAT 101.9, simulcasting sports KFNZ-1320  
Salt Lake City: KSOP-FM 104.3, PG>1140m  
St. George: KZBS 90.7, calls for new station

#### VERMONT:

Norwich: WNCH 88.1, PR 100w-H/1.6kw-V/689m  
Warren: WMRW-LP 95.1, XR 44-06-31/72-49-11

#### VIRGINIA:

Cheriton: WWIP 89.1, calls for new station  
Emporia: WJYA 89.3, PG>135m, 36-46-04/77-43-39  
Heathsville: WCNV 89.1, calls for new station  
Mount Jackson: WSIG 96.9, PC>4.3kw/170m, 38-36-31/78-54-07  
Susan: WSUV-LP 102.3, NW ?w/60m, 37-23-09/76-19-02

#### WASHINGTON:

Centralia: KMNT 102.9, PG>87kw/635m, 46-58-31/123-08-16  
Olympia: KOWA-LP 106.5, XR 47-01-15/122-57-50  
Pacific Beach: KXPB-LP 89.1, PG ?w/71m, 47-13-07/124-12-13  
Pullman: KFFR 97.7, calls for new station  
Tacoma: KXOT 91.7, PR>39kw

#### WEST VIRGINIA:

Beckley: WVPP-LP 97.9, NW ?w/40m, 37-47-35/81-12-17  
Clay: WYAP-LP 101.7, PG<-60m, 38-28-32/81-05-03  
Edmond: WQAZ-LP 98.5, NW ?w/123m, 38-03-23/80-59-49  
Gary: WHQX 107.7, PC 8.6kw/172m  
Martinsburg: WLTF 97.5, PG 11.5kw/316m  
Martinsburg: WVEP 88.9, PR<3.5kw/484m  
Petersburg: WAUA 89.5, PG<322m  
Webster Springs: WAFD 100.3, PC>35kw

#### WISCONSIN:

Marinette: WLCJ-LP 92.5, XR 45-05-33/87-37-18  
Milwaukee: WMYX-FM 99.1, NW 440w/54m, 43-02-18/87-55-16 (aux)  
Omro: WPKR 99.5, PC 25kw/151m, 43-49-44/88-40-06  
Richland Center: WRCO-FM 100.9, PR>23kw/105m  
Siren: WXCX 105.7, FC to classic hits  
Superior: WSAD-LP 93.7, calls for new station  
Wausau: WCLQ 89.5, PC>90kw/185m

#### WYOMING:

Chugwater: KLWV 90.9, PG>361m  
Kemmerer: KAOX 107.3, PC>100kw/289m  
Orchard Valley: KWYC 90.3, PR<20kw/130m  
Rock Springs: KUWZ 90.5, PR 50kw/512m, 41-25-39/109-07-17

#### ONTARIO:

Ottawa: CKBY-FM 105.3, CC to CISS-FM

Smiths Falls: CIOX-FM 101.1, CC to CKBY-FM

Toronto: CISS-FM 92.5, CC to CJAQ-FM

#### QUEBEC:

Pohenegamook: CFVD-FM-2, QG from 104.9; PG>294w

Squatec: CFVD-FM-3, PG>301w

#### YUKON TERRITORY:

Whitehorse: CKRW-1-FM, NS 380w // CKRW-AM

#### Some news and notes:

- WBZZ/Pittsburgh finally realized the stupidity of their slogan change last year from the heritage "B94" to "93-7 BZZ", changing the slogan back, but in a different form as "B93.7". They are currently being beat by CC's WKST 96.1.
- WKLL 94.9 out in New York State changed back to its K-Rock modern rock format after the sale of the stations to the owners who were going to implement the new format fell through.
- Late news: KEGL/97.1 The Eagle in Dallas was blown up by Clear Channel, to a hybrid of Philadelphia's WSNI as "Sunny 97.1", with a similar logo.

Another relatively quiet month in FM radio around the country. It's also been a tough early start to the Dxing season.. hopefully that gets better. Some skip has shown up here so far, but only on TV. Have a great beginning to the summer!

-Adam

# ATSC PRIMER IX

Doug Smith

## **Reception limitations:**

If you haven't been under a rock, you're probably aware that the music industry (and to a lesser degree, the film industry) has been fighting a piracy epidemic. File-sharing networks on the Internet are blamed<sup>1</sup> for a sharp reduction in sales of recorded music. Program producers fear DTV will allow the unauthorized distribution of perfect digital copies of their shows, with commercials removed. This would limit their ability to sell off-network programs in syndication or directly to the public.

## **Broadcast Flag:**

A proposal has been made for the establishment of a "broadcast flag". This is a burst of data that would be transmitted along with the DTV signal<sup>2</sup>. It would tell the receiver what it's allowed to do with the received program. Digital VCRs would be required to "listen to" this flag. A given program might:

- Ⓞ Allow viewing only, VCRs would refuse to record the program.
- Ⓞ Allow viewing and recording, but VCRs would refuse to make a copy of a recording.
- Ⓞ Allow viewing and recording, with no limits on making copies of recordings.

There's an obvious shortcoming in this scheme. There's no way to pass the "broadcast flag" to an analog output – no way to prevent a DTV setowner from recording restricted programs on his analog VCR. Nor on a digital recorder<sup>3</sup> with an analog input.

The content industry has suggested plugging this "analog hole". Their proposal would require that DTV receivers refuse to output any program that has the "broadcast flag" set from any analog output. It could only be passed to digital outputs, to devices that would be required to honor this flag.

There are two problems with this scheme. The obvious one is that, after transition, viewers who have bought a DTV receiver to use with their existing analog display will no longer be able to view the flagged programs. They'll be forced to buy an expensive digital-input display. Knowledge of this issue will (has) slow the transition to digital, by making viewers less likely to buy a DTV tuner unless they can afford a digital display as well<sup>4</sup>.

Less obvious is the devaluation of thousands of high-definition analog displays already purchased by early adopters of DTV.

A television display is inherently analog. The brightness of a spot on the screen depends on the amount of current applied by the electron gun at that point. You don't send the number 35,178 to the picture tube and expect it to display a dot of 53.6%<sup>5</sup> brilliance. Rather, you send a current of, say, 536uA.

Most existing high-definition displays put most of the "smarts" in the tuner. The display simply accepts analog currents representing the amount of red, green, and blue at any given point, and displays them as dots of a given brilliance. These displays do not contain a digital input – they have no way of obeying the "broadcast flag".

Requiring DTV receivers to honor this flag, and to refuse to transmit flagged programs through any analog output, would make it impossible to watch flagged programs on existing high-definition displays. Furthermore, existing anti-piracy laws would probably make it illegal to offer an external digital-to-analog converter.

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<sup>1</sup>In this author's opinion, file-sharing is only part of the reason; a slow economy, high prices, the demise of the single, and "overconsulted" music & radio that don't offer anything of interest to many would-be buyers have contributed to the decline.

<sup>2</sup>As part of the "conditional access" scheme?

<sup>3</sup>Such as TiVO.

<sup>4</sup>The price of a digital display is (very!) roughly 10 times that of a DTV tuner.

<sup>5</sup>35,178/65,535 ; 65,535 is the greatest number that can be represented by a 16-bit digital system.



As you might imagine, existing HDTV set owners emphatically oppose the broadcast flag. (even those – the vast majority – who have no intention of engaging in unauthorized copying) Equipment makers also oppose the flag. Presumably they fear people will continue to operate their analog equipment as long as possible – will delay purchase of digital receivers and displays – if they know they'll be restricted in what they can record.

Program producers are equally adamant about supporting this flag. CBS/Viacom has threatened<sup>6</sup> to stop carrying high-definition programming this fall if a flag was not in place. Other producers haven't taken such drastic steps, but still fully support the proposal.

A big unresolved question is that of what kind of material will be subject to the flag. Will only feature films and popular sporting events be flagged? Or will regular series like comedies and dramas be flagged as well? How much recording will be permitted?<sup>7</sup> <sup>8</sup> It looks like this will be up to the program providers.

### **Geographic restrictions:**

About the same time DTV got started, the digital “mini-dish” satellite operators began to offer network-affiliated TV to their subscribers. At first, only one or two sets of network affiliates were carried; most satellite viewers could not receive their local stations through the satellite. Because of copyright restrictions<sup>9</sup> satellite operators are only allowed to offer a network affiliate if either it's the viewer's local affiliate, or the viewer is unable to receive an affiliate of that network. This led to the need for “waivers” and submission of your ZIP code before receiving network affiliates through the dish.

It's my belief this is what started a rumor that DTV would include geographic restrictions. Some equipment salesmen have told DXers that DTV receivers would demand your ZIP code and refuse to receive any stations besides your locals. Obviously this would make DXing difficult!

There are no laws, regulations, or technical standards requiring DTV receivers to receive only your locals. In fact, the vast majority of receivers will happily display any station they see during a channel scan.

As it turns out, however, a few DTV receivers have been sold that do request the user's ZIP code and display only those stations that cover that code. My best guess is the manufacturers believe it's a good way to ensure the receiver gets all the stations their customers want to see<sup>10</sup>, even if those stations are not on the air during a channel scan. DXers, of course, need to avoid such receivers.

### **Conclusion:**

OK, that's it. Hopefully we've adequately explained how DTV works and how the United States is transitioning from analog to digital. Please feel free to drop me a line with any further questions you might have. I don't promise an answer, but I'll sure try!

Doug Smith  
1385 Old Clarksville Pike  
Pleasant View, TN 37146-8098  
w9wi@w9wi.com

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<sup>6</sup>But since withdrew the threat.

<sup>7</sup>Will I be allowed to record “Law and Order”, but not to make a copy of the recording? Actually, in that case if I still had only an analog VCR I wouldn't be able to record it at all because of the “analog hole”.

<sup>8</sup>This is a serious concern for this author. I work evening shift – I'm only able to watch TV between roughly 8am and noon. Obviously, the programs scheduled during this period are not of much interest to men above the age of 12!

If I'm unable to record the interesting programs airing between 6 and 11pm while I'm at work, I have little or no reason to buy digital equipment.

<sup>9</sup>Broadcast TV programs are copyrighted and cannot be retransmitted without the station's permission.

<sup>10</sup>After all, unfortunately the vast majority of viewers are not DXers...

# PHOTO-NEWS

Jeff Kruszka, Editor  
5024 S. Braxton Ave.  
Baton Rouge, LA 70817  
jkruszka@bellsouth.net

June 2004

This month we have photos from me!:

Equipment: 1992 Zenith "Sentry 2" 13" color TV, Channel Master 4228A screened 8-bay w/CM Spartan 3 #0071 preamp and RG-11 coax for UHF, Channel Master 1114 Crossfire w/CM #0040 preamp, MFC trap for 88.5 MHz, and RG-6 for VHF, both in attic @20 ft. AGL. WinTV-D card.



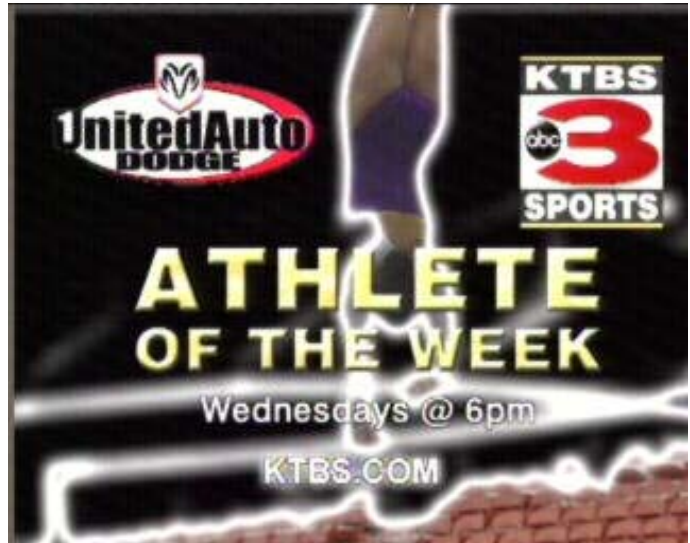
KVOA-4 Tuscon, AZ  
1175 mi Es seen 6/20/03  
@1851 CT



KBMT-DT-50 Beaumont, TX  
180 mi Tr seen 10/22/03  
@ 2136 CT



KSLA-DT-17 Shreveport, LA  
205 mi Tr seen 11/15/03  
@0106 CT



KTBS-DT-28 Shreveport, LA  
205 mi Tr seen 11/14/03  
@ 2341 CT  
"Program 1"



KWTX-DT-53 Waco, TX  
365 mi Tr seen 4/16/04  
@2215 CT

WUPA-DT-43 Atlanta, GA  
455 mi Tr seen 12/16/03  
@ 0024 CT  
*"UPN Atlanta"*

KLRU-DT-22 Austin, TX  
395 mi Tr seen 3/20/04  
@0910 CT  
*"Program 1"*

KFDM-6 Beaumont, TX  
180 mi Tr seen 3/21/04  
@0253 CT

WFTX-DT-35 Cape Coral, FL  
620 mi Tr seen 4/10/04  
@2358 CT



WTVK-46 Naples, FL  
645 mi Tr seen 4/11/04  
@0100 CT

WJTV-DT-52 Jackson, MS  
135 mi Tr seen 5/7/04  
@0700 CT

73's,  
*JEFF*

# Eastern TV-DX

Matthew C. Sittel  
 15013 Eureux St.  
 Bellevue, NE 68123  
 mcsittel@cox.net

June, 2004

Jul. 2004 column deadline: Jun. 12

Eastern TV-DX is for reporters from the following states: AL, CT, DE, FL, GA, IN, KY, MA, MD, ME, MI, NC, NH, NJ, NY, OH, PA, RI, SC, TN, VA, VT and WV, plus Washington, DC. Also for reporters from the following Canadian provinces: NB, NF, NS, ON, PEI and PQ. Overseas reports welcome!

Five reporters this month-that's more like it! Long-time WTFDAers will be interested to see two familiar names back in print: Les Prus and Roger Gravelle! Thanks to both of you for taking time to report. It's never too late to share your DX; it only takes a few minutes to let everyone in the club know what you've been up to and what you've been seeing. With skip season upon us now is the time to

Doug Smith, W9WI, Pleasant View, TN

w9wi@earthlink.net  
<http://www.w9wi.com>

<u>4/17 tr</u>						0630	<u>W42CR</u>	42	TN	Nashville <1>	23
0600	WCFT	33	AL	Tuscaloosa	223		WDBD	40	MS	Jackson, WB 40	338
	Northport ad					0729	KARD	14	LA	W. Monroe <2>	415
	WKDH	45	MS	Houston	212	0900	KFWD	52	TX	Fort Worth	630
	North MS radar						ID w/"DT 51"				

Notes:

1. Telefutera, previously logged as W59AW and W52CT.
2. Local fishing derby ad, sponsors include "K-104" (KJLO) and KTVE-10.

Rick Shaftan, Sparta, NJ

shaftan@earthlink.net

<u>2/10 Es</u>							ID or promo for WFSI				
1029	KPRC	2	TX	Houston	1411	1405	WBRC	6	AL	Birmingham	846
<u>2/12 Es</u>							Fox 6				
1301	KETS	2	AR	Little Rock	1058						

William McGuire, Cheverly, MD

Equipment: Admiral 13" color TV.

<u>2/3 Es</u>						1827	WTVR	6	VA	Richmond, CBS 6	
2025	WEDU	3	FL	Tampa, PBS		<u>5/6 tr</u>					
2030	unID	3	ABC			2030	WBOC	16	MD	Salisbury, ID	
<u>2/3 tr</u>						2312	WAVY	10	VA	Portsmouth, logo	
2100	WGAL	8	PA	Lancaster, NBC		<u>5/7 tr</u>					
<u>3/2 tr</u>						0000	WTFX	29	PA	Philadelphia, Fox 29	
2100	WWBT	12	VA	Richmond, NBC 12		0927	WVIR	29	VA	Charlottesville1647	
2112	WVIR	29	VA	Charlottesville, NBC			WHYY	12	DE	Wilmington, PBS	
2140	WTVR	6	VA	Richmond, CBS		<u>5/10 tr</u>					
2200	WAVY	10	VA	Portsmouth, logo		0636	KYW	3	PA	Philadelphia, logo	
2040	WBOC	16	MD	Salisbury, CBS		<u>5/10 Es</u>					
2220	WHYY	12	DE	Wilmington, PBS		1411	unID	3	ABC		
<u>3/29 tr</u>						1800	Cubavision	3	CUBA,	cartoon, ID	
1810	WWBT	12	VA	Richmond, logo							

Les Prus, Alexandria, VA

Equipment (temp setup as of 3/3/04): Toshiba CN36X81 36" HDTV & DST-3000 DTV converter w/RS UHF 100" corner reflector yagi outside on 10' mast (digital); Toshiba 14AF42 14" TV with CM 4228 8-bay bowtie in the bedroom (analog loggings).

3/2-3 tr

2345-0015 WVBT-DT-29 and WAVY-DT 31

0015-0130 WAVY-10. WCVE-23, WTVZ-33, WVBT-43 Norfolk, VA, unID-42 (the visual ID looked like "WKRP"), WLFL-22, WRDC-28 in Raleigh, NC.

Here's my first TV DX in a number of years; none to report for remainder of March and April, but I have been improving my DX systems in the interim.

On March 2/3, 2330-1330 EST, tropo noted to the south (Richmond and Norfolk VA, and Raleigh NC at 225 miles).

Roger Gravelle, 60 South Valerie St., St. Thomas, ON N5R A18 Canada

Equipment: 37" Electrohome 89CG01, 5' parabolic (Delhi) at 80' for UHF and Delhi 1047 for VHF at 70', separate amps on tower.

I'm back from winter in Fort Myers Beach, FL! I purchased a Samsung digital converter SIR-T351 from Circuit City. (Editor's note: Signal refers to that on the Samsung receiver's meter. I have abbreviated "Signal 8", for example, to "s8"-mcs)

4/27 GW

0800 CTS 14 ON London 20  
new station, low power

5/1 tr

1900 WFXT-DT 22 PA Erie, s8 75  
big improvement over ch. 66 for reception

1901 WICU-DT 52 PA Erie, s5 75  
Running 1000 watts per John Wilcosie, CE; was surprised I was receiving station

1930 WJET-DT 58 PA Erie, s5 75  
low power

1935 WQLN-DT 50 PA Erie, s9 75

2300 WEWS-DT 15 OH Cleveland, s9 110

2305 WJW-DT 31 OH Cleveland, s9 110  
through local "City" Woodstock ch. 31

2307 WUAB-DT 28 OH Cleveland 110

2308 WQHS-DT 34 OH Cleveland, s8 110

2310 WEAO-DT 50 OH Akron, s5 140

5/6 tr

2200 WDIV-DT 45 MI Detroit, s9 120  
Had NBC on 4-1, weather radar 4-2, camera from Windsor on Detroit skyline on 4-3 (ID as "CH 4")

2205 WXYZ-DT 41 MI Detroit 120  
7-1 ABC, 7-2 Detroit weather radar  
7-3 ID WXYZ 7 & 41

2209 WJBK-DT 58 MI Detroit 120

2215 WKBD-DT 14 MI Detroit 120  
thru London local

2220 WWJ-DT 44 MI Detroit 120

2230 WADL-DT 39 MI Mt. Clemens 100  
39-2 WOKD-TV

5/7 tr

0700 WTVG-DT 19 OH Toledo 150

0800 WGTE-DT 29 OH Toledo 150

Suspect only, could not get local and ID on WTOL-DT 17, signal 3, need 4 or 5 to get ID.

2200 WDLI-DT 39 OH Canton 150

39-1 TBN, ID on screen

39-2 "Church Channel" ID on screen

39-3 Music ID JDTV on screen

TBN WWJD Santa Ana

39-4 "Enlace" USA Spanish language

2300 WFMJ-DT 20 OH Youngstown 140

Comment: I hope digital tuners in televisions have better "time" performance than my converter. Lock time is way too long once a digital signal is found if near threshold of 5 signal strength.

Overall, digital TV has tremendous potential for program diversity, e.g., small community could have 5 networks on one channel and tower and be cost frugal! Lock ID is great! 73's Rog.

## WTFDA Convention 2004 Omaha, NE, Jul. 30-Aug. 1

It's not too late to make your reservations and join me and co-host Mike Hawk here in Omaha for WTFDA Convention 2004. Our host hotel is the Park Plaza Regency Lodge near 108<sup>th</sup> and Pacific in Omaha. We'll have antennas setup at the Park Plaza, and also plan on having RDS-equipped tuners and a DTV set-top box to demonstrate DXing with the latest technology. Also planned is a tour of the studios of frequent skip catch, KMTV-3. Morning meteorologist Charles (C.T.) Thongklin, WXOD, will be our tour guide. Contact Park Plaza directly at (402) 397-8000 to make your reservations. Convention registration is \$28 which includes the Saturday dinner banquet. You may send payment directly to me at the address at the start of this column. Feel free to contact me if you have any questions. I hope to see you here in Omaha next month!

# WESTERN TV DX

**VICTOR FRANK**  
**12450 SKYLINE BLVD.**  
**WOODSIDE, CA 94062-4554**  
**Victor.frank@sri.com**



**Dennis Park Smith**, 3605 San Remo Drive, Santa Barbara, CA 93105-2523 (805)687-7803

This report is for April 2004. Yes—as it seemed last month, it has gotten into the hot summer about a month earlier than usual (with area water and fire concerns), with some tropo (to San Diego/Tijuana up to 200mi/ 320km), though not settled into a real pattern.

Apr 1-9 am: None (upper level winds; somewhat cooler.)  
 Apr 9 eve-13: Poor (Quieter, somewhat stable, slightly warmer)  
 Apr 14-23: None (Unstable; weather fronts, occas. Windy)  
 Apr 24: Poor (Stable; warming)  
 Apr 25: Fair  
 Apr 26: Poor (Perhaps higher inversion?)  
 Apr 27: None (“ ”)  
 Apr 28: Fair + (Temp. HOT!)  
 Apr 29-30 am: None  
 Apr 30 eve & early May: Variably poor to fair.

One new station was seen in Santa Barbara, starting April 9, when KCET-28 Los Angeles translator K55AP west S.B./Goleta/Santa Ynez changed from ch. 55 to ch. 28 (new call in April VUD TV News—I don't have VUD right here as I'm typing this...)

Best of DX to All. Dennis

**Jeff Kruszka**, 5024 S. Braxton Ave., Baton Rouge, LA 70817

<u>April 2004</u>		CT
6 GW	0657 <u>WPXL-DT</u> 50 LA	75
tr	2214 <u>WEIQ-DT</u> 41 AL	180
	2217 <u>WVEA</u> 62 FL	575
8 GW	2259 <u>WVUE-DT</u> 29 LA	75
10 tr	0052 Austin 22, 36, 42, 54	395
	2159 WFTX 36 FL	620
	2224 WVEA 62 FL	575
	WXPX 66 FL Pax	560
	2226 WFTT 50 FL	550
	2230 W48CN 48 FL TBN	565
	2235 WRBW 65 FL	600
	2237 <u>W56EB</u> 56 FL Note 1	555
	2242 WFLA-DTt 7 FL	
	2342 WFTS 28 FL	550
	2350 <u>WFTX-DT</u> 35 FL	620
11 tr	0039 WTVK 46 FL	645
	0047 <u>WVEA-LP</u> 46 FL Note 2	555
15 tr	2200 unid 18 SS to W.	
	2229 XHAB 7 TA	505
	2343 XHFOX 17 TA	535
16 tr	2007 KEDT 16 TX	425

	KXAN	36 TX	395
	2010 KTBC	7 TX	395
	2229 KEYE	42 TX	395
	2231 KVDA	60 TX	445
	2315 <u>KUPB</u>	18 TX Univision	655
	2316 <u>KPEJ</u>	24 TX ID	670
	2336 <u>KOSA</u>	7 TX CBS 7	670
17 tr	0715 WJSP	28 GA	390
18 tr	0013 KLRT	16 AR	305
	0114 KVTH	26 AR "VTN"	295
	0646 WZTV	17 TN "Fox 17"	465
	0651 unid 59 DTV sync lock to NE		
23 tr	2209 unid 14 DTV sync lock to NE		
	2248 WRJM	67 AL	320

Note 1 – Station # 700!

Note 2 – Formerly received on ch. 61; running color bars with ID, floating over WTVK

Tropo picked up this month with some nice openings to FL and TX. WFTX-DT Cape Coral was in for an hour with zero errors (see Photo News). I've seen Midland/Odessa via tropo only once before (which I thought was probably once in a lifetime), so that was unexpected. I thought the 18 SS was a new Mexican at first, but there's nothing listed in Doug's database.

**Matthew C. Sittel**, 15013 Eureux Circle, Bellevue, NE 68123  
**mcsittel@cox.net**

<http://members.cox.net/mcsittel/beltvdx.htm>

Equipment: Winegard PR-9032 UHF antenna at 35', Winegard AP-4700 UHF pre-amp., Winegard PR-5030 VHF antenna at 32', Channel Master remote controlled rotor, MFC traps for channels 3, 6, 7 and 26, Hauppauge WinTV-D PCI card for HDTV.

### 1/12 Es

0648 WGRZ 2 NY Buffalo, logo 899

### 3/19 tr

0711 WFTC 29 MN Minneapolis 309

0718 KSTP-DT 50 MN St. Paul 309

0730 KLJB 18 IA Davenport 289

### 4/16 tr

0712 14/25/34/43 OK Oklahoma City 390

0720 KSBI 52 OK Oklahoma City 404

0720 KSTR 49 TX Irving, TLM, SS 594

0722 KPTS 8 KS Hutchinson 232

0723 KFWD 52 TX Fort Worth 591

0726 KAKE 10 KS Wichita, wx 244

0728 KWTV 9 OK Oklahoma City 393

0730 KPXD 68 TX Arlington, ID 591

0731 KAKW 62 TX Killeen, UNI, SS 726

0736 KWCV 33 KS Wichita, WB 244

0759	<u>KDTX</u>	58 TX	Dallas, TBN, ID	591
0807	<u>KWCV-DT</u>	31KS	Wichita	244
	Text ID: (KWCV Digital Television)			
0813	<u>KOPX-DT</u>	50 OK	Oklahoma City	389
	Text ID: (KOPX Digital Television)			
0820	<u>KOZK</u>	21 MO	Springfield,OPT	312
0823	<u>KTXA-DT</u>	18 TX	Fort Worth	591
	Text IDs: (UPN 21), (Radar)			
0827	<u>KTVT-DT</u>	19 TX	Fort Worth	592
	Text ID: (KTVT-DT)			
0828	<u>KXTX-DT</u>	40 TX	Dallas	591
	Text ID: (KXTX-DT). Local KUON-DT signed on 10 minutes later!			
0834	<u>KXAS-DT</u>	41 TX	Fort Worth	591
	Text IDs: (KXAS-SD), (KXAS-DT)			
0836	<u>KDFW-DT</u>	35 TX	Dallas	591
	Text ID: (KDFW-DT)			
0851	<u>KOOD-DT</u>	16 KS	Hays	219
0851	<u>KOOD</u>	9 KS	Hays	217
0903	<u>KTXA</u>	21 TX	Fort Worth	591
<u>4/17 tr</u>				
1957	<u>KPXE-DT</u>	51 MO	Kansas City	161
2212	<u>KCRG-DT</u>	52 IA	Cedar Rapids	226
<u>4/26 tr</u>				
0713	<u>K29EA</u>	29 IA	Des Moines	128
0718	<u>KCRG-DT</u>	52 IA	Cedar Rapids	226
0720	<u>KPXR-DT</u>	47 IA	Cedar Rapids	225
0728	<u>KGAN-DT</u>	51 IA	Cedar Rapids	224
0733	<u>KWWL-DT</u>	55 IA	Waterloo	229
<u>5/5 tr</u>				
0648	21/33	MO	Springfield	312
0709	8/17	MO	Columbia	240
0709	13/25	MO	Jefferson City	262

0725	18/31/34/51	MO	Kansas C. DTV	156
<u>5/6 tr</u>				
0650	10/33	KS	Wichita	244
0655	KPTS-8	KS	Hutchinson	232
0701	KSNC-2	KS	Great Bend	238
0745	9/34/43/52	OK	Oklahoma City	390

April 16 was a nice opening; I was very pleased to get the DFW DTVs. KAKW-62 was a nice surprise also! Log total now stands at 740, which includes 108 DTVs. 73s Matt.

**Michael Hawk, Omaha NE**

Equipment: WINTV-D card, Channel Master 4248 @ 25' AGL, Winegard AP-4700

April 2004 CT

16 tr	0705	<u>KFOR-DT</u>	27 Oklahoma City	OK
	0708	KOCB	34 Oklahoma City	OK
	0714	<u>KAUT</u>	43 Oklahoma City	OK
	0715	<u>KWTV-DT</u>	39 Oklahoma City	OK
	0716	<u>KOPX-DT</u>	50 Oklahoma City	OK
	0720	<u>KDFW-DT</u>	35 Dallas	TX
	0720	<u>KSBI</u>	52 Oklahoma City	OK
	0722	<u>KPXE-DT</u>	51 Kansas City	MO
	fairly new to air			
	0940	<u>KWWL-DT</u>	55 Waterloo	IA

Quite an opening on 4/16. There were several unID's that were likely Dallas, but I had to leave from 0730 to 0930, and missed the peak of the opening.

# The WTFDA Mexican FM Directory

Just in time for the 2004 E skip season, it's the 2004 Mexican FM Directory with stations sorted by frequency. If you're in range of Mexican FM skip, this 60 page directory is something you can use. **The price of the directory is just \$7.00.**

To order a copy of the Mexican FM Directory, send a check or money order for \$7.00 payable to Dave Janowiak and send it to **Jim Thomas, 280 Katsura Avenue, Milliken, CO 80543.** For more information, email Jim at [mrradiohead@netzero.com](mailto:mrradiohead@netzero.com)



**This Month's Cover...**

Is supplied by WTFDA member Paul Mitschler living in Albuquerque, NM. It's a photo of the transmitter farm on top of Sandia Crest. It looks in a way like Mount Wilson, but it's not. Perhaps one of us will hear one of these transmitters this summer. Thanks to Paul for this photo and for one we haven't published yet.



# SATELLITE NEWS

GEORGE W. JENSEN  
4604 ANTANNA AVE, Baltimore, MD 21206-4220  
SCISATMAN@AOL.COM

Not much this month - just 1 change and a bunch of new programming possibilities. The one change is CNBC from Galaxy 5 -13 to W3 - 22  
Now to the new planned services - MPEG2, Digicipher (4DTV), VC2, HDTV, ??? all to be determined at a later date. The planned services are:  
SCREAM CHANNEL - speaks for itself, better than Sci-Fi, I hope  
ANIME NETWORK - Japanese animation programs  
CSTV - College Sports  
FOX SPORTS DIGITAL NETWORKS ??????  
FUEL - FOX SPORTS ACTION SPORTS NETWORK?????  
G4 - Video Gaming Network  
GOLTV - Soccer games - has been testing at times  
HORSERACING TV - speaks for itself  
NBATV - has been testing at times on G11  
NFL NETWORK - football  
REALITY TV - documentary and similar programs???  
SI TV - Latino themed English language  
SORPRESA - Spanish kids channel  
THE SPORTSMAN CHANNEL - Hunting and fishing  
THE TENNIS CHANNEL - is already testing  
TV ONE - African-American network

AMERICA CHANNEL - ???  
CASINO AND GAMING TELEVISION - Speaks for itself  
CAREER ENTERTAINMENT TELEVISION - Work and the workplace???  
EDGE TV - Gaming channel  
GOSPEL MUSIC CHANNEL  
HERE TV - Gay and Lesbian Themed  
HYPE TV - Hip Hop music  
THE ICE CHANNEL - skating etc.  
IMAGINASIAN TV - Asian American  
THE MARTIAL ARTS CHANNEL  
MAVTV - Sex, sports, technology and finance  
THE Q TELEVISION NETWORK - Gay and Lesbian Themed  
REALITY CENTRAL - reruns and originals  
SOUTHERN ENTERTAINMENT TELEVISION - Thought this was around once before  
STAND UP COMEDY TELEVISION  
THE FOOTBALL NETWORK - not the NFL  
VARSITY TELEVISION - currently testing on G11  
WHEELS TV - Automotive programs  
This looks like a real 8566'/\*&5## line-up a great programming.  
That's all for this month - see you in 30. "73"s

*Change*



## NATIONAL RADIO CLUB 2004 CONVENTION

***Batavia, New York***

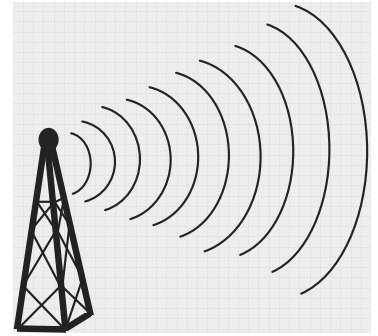
**Labor Day weekend Sept. 2-5, 2004**

The National Radio Club is holding their 2004 convention this year at the Days Inn of Batavia (Exit 48 off I-90). Make your reservations now by calling the hotel at 585-343-1440. Rooms are \$72 per night for up to four people per room.

This is the same hotel that hosted the WTFDA convention last year. There is plenty of free parking and many good, inexpensive restaurants in the area and the ramps to I-90 are just a few hundred feet away. Email Scott Fybush for more info at [scott@fybush.com](mailto:scott@fybush.com).



# Northern FM DX



Keith McGinnis  
387 Shirley Street, Winthrop, MA 02152  
longwave@attbi.com 617-846-5760

For Dxers in the following states: CT IA ID IL IN MA ME MI MN MT ND NE NH NJ NY OH OR  
PA RI SD VT WA WI WY and all of Canada. Please submit by the 10<sup>th</sup> of each month. If possible  
please submit in the formats shown Below.

**EDITORS NOTE: PLEASE NOTE THAT ANY TYPEWRITTEN OR HANDWRITTEN REPORTS  
MIGHT BE DELAYED TILL A LATER ISSUE AS TIME PERMITS. ALSO PLEASE KEEP  
REPORTS AS RECENT AS POSSIBLE (THE LAST 3 MONTHS SHOULD WORK FINE). THANK  
YOU.**

**Michael Hawk, Omaha NE  
Equipment: Technics ST-9030, FM-10 at 25' AGL, Conrad RDS**

#### April 6 2004 Tr

0729	KUQL	98.3	Wessington Spg	SD	oldies; Cool 98
0740	KPLO	94.5	Reliance	SD	C&W, lcl weather
0747	KWYR	93.7	Winner	SD	local sports
0836	K202CY	88.3	Norfolk	NE	K-Love
2003	KNLV	103.9	Ord	NE	local news

#### April 16 2004 Tr

0555	Wichita area 97.9, 98.7, 106.5 noted very strong				
0600	KHBZ	94.7	Oklahoma City	OK	The Buzz; 405 miles
0602	KDGS	93.9	Andover	KS	Power 93.9; KS #110
0605	KCVW	94.3	Kingman	KS	rel
0630	K252DA	98.3	Enid	OK	KLVV ID's
0644	KATT	100.5	Oklahoma City	OK	
0651	KHKS	106.1	Denton	TX	Kiss FM; Kidd Kraddock
0915	KFWR	95.9	Mineral Wells	TX	C&W; lcl ads; hrd in car
0929	KLVV	88.7	Ponca City	OK	ID
0950	KJYO	102.7	Oklahoma City	OK	KJ-103; ID o/KFRX

#### April 18 2004 Tr

0218	WSSM	106.5	Granite City	IL	St Louis' Smooth Jazz
0220	KFUO	99.1	Clayton	MO	opera
0625	KSPQ	93.9	West Plains	MO	Q-94 Triple Play
0631	KGMV	100.5	Aurora	MO	local ads
0634	KOMT	107.5	Mountain Home	AR	MoYL
0647	KKLH	104.7	Marshfield	MO	"KLH"
0700	KOKS	89.5	Poplar Bluff	MO	rel; ID a ToH
0705	KBIY	91.3	Van Buren	MO	"Heres Help Radio Network"
0710	KASU	91.9	Jonesboro	AR	classical mx; end of "Joy" music program; ID
0715	KBIA	91.3	Columbia	MO	
0731	WSIE	88.7	Edwardsville	IL	ID
0740	WNIN	88.3	Evansville	IN	ID, mention of show on WNIN-TV, 509 miles
0810	KZLE	93.1	Batesville	AR	?? 93-1 FM; lcl ads, 448 miles
0826	KPNT	105.7	Ste Genevieve	MO	

#### April 28 2004 Tr

0557	KEEZ	99.1	Mankato	MN	good tropo indicator station
0601	KIKN	100.5	Salem	SD	Kickin Country

0603	KVHT	106.3	Vermillion	SD	Mix 106.3	
0613	KZPK	98.9	Paynesville	MN	Wild Country 99	
0617	KKSR	96.7	Sartell	MN	Kiss 96.7	
0631	KBHZ	91.9	Willmar	MN	Praise FM; #1800 logged from Omaha	
0645	KCGN	101.5	Ortonville	MN	Praise FM; RDS	
0651	KOLV	100.1	Olivia	MN	C&W; ID	
0700	KRSW	89.3	Worthington	MN	news; missing from log	
0715	KKSD	104.3	Millbank	SD	Oldies 104.3	
0722	KAUR	89.1	Sioux Falls	SD	Augustana College Radio; 890 watts	
0730	KARL	105.1	Tracy	MN	C&W; Karl Country	
0750	KDJS	95.3	Willmar	MN	K-95.3	
0755	KBWS	102.9	Sisseton	SD	Pheasant Country	
0800	KVCF	90.5	Freeman	SD	VCY religion	

---

**Matthew Sittel, 15013 Eureux Circle, Bellevue, NE 68123**

**[mcsittel@cox.net](mailto:mcsittel@cox.net) <http://members.cox.net/mcsittel/dx.htm>**

**Equipment: Yamaha TX-900 tuner w/modified filters, Winegard PR-5030 VHF/FM antenna w/rotor at 32 feet, Conrad RDS unit, Radio Shack signal attenuator for overload problems.**

April 3 2004 Tr

0954	KZPL	97.3	Lees Summit	MO	the Planet	158
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April 16 2004 Tr

0756	KLVV	88.7	Ponca City	OK	calls	312
0808	KZSN	102.1	Hutchinson	KS		244
0811	KATT	100.5	Oklahoma City	OK	Katt	404
0823	KNID	99.7	Alva	OK	calls	336
0828	KTLI	99.1	El Dorado	KS	Lite 99	225
0844	KRZZ	96.3	Derby	KS		245
0845	KFWR	95.9	Mineral Wells	TX	the Ranch	585
0857	KREP	92.1	Belleville	KS	KR 92	129
0922	KVGB	104.3	Great Bend	KS	local ad 238	

May 6 2004 Tr

0739	KHMY	93.1	Pratt	KS	My 93-1	253
0743	KFH	98.7	Clearwater	KS	calls	270
0744	KATT	100.5	Oklahoma City	OK	Katt	404
0748	KVGB	104.3	Great Bend	KS	local ad 238	
0751	KCFN	91.1	Wichita	KS	RDS: "KCFN"	226
0752	KXKU	106.1	Lyons	KS	Kix, k	222
0800	KCVT	92.5	Silver Lake	KS	Life 92 FM	135
0801	KHUT	102.9	Hutchinson	KS	Country102-9	238
0814	KBBE	96.7	McPherson	KS	local ads	212
0816	KNID	99.7	Alva	OK	calls	336
0817	KFDI	101.3	Wichita	KS	calls	244
0820	KHBZ	94.7	Oklahoma City	OK	the Buzz	402

Nice to have some tropes again after a long winter. Hopefully skip season will be a good one. Log total is now 901. 73s Matt.

---

**Jim Renfrew, Byron NY**

**Sansui TU-9900, UHF & FM Antennae with rotor, VHF antenna hand-steered**

**\* = new, # = new with these calls**

May 7 2004 Tr

2100	*WCMU	89.5	Mt. Pleasant	MI	"CMU"	340
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May 8 2004 Tr

0200 UNID 100.3 Pirate or low power CKRZ, all oldies, Motown, disco, no voice announcements of any kind

May 10 2004 Tr

1221 WJIS 88.1 Bradenton FL 1104  
 1230 WSEB 91.3 Englewood FL 1137  
 1232 WDDV 92.1 Venice FL (PI5CF7) 1129  
 1235 \*WBTP 95.7 Clearwater FL r (PI 8615) "The Beat" (RDS reads old calls x WSSR) 1074  
 1245 #WAMO 106.7 Beaver Falls PA "WJJJ 107.1" and "WAMO 860"  
 1305 WYFO 91.9 Lakeland FL Moody 1059  
 1310 \*WXOF 96.3 Yankeetown FL "The Fox" 1003  
 1311 WSKY 97.3 Micanopy FL tentative with Limbaugh 965  
 1320 WNFB 94.3 Lake City FL "mix" 924  
 1321 UNID 93.1 "Today's New Hit Country", WKRO?  
 1740 WMXD 92.3 Detroit MI

May 11 2004 Tr

0024 WQMX 94.9 Medina OH

May 17 2004 Tr

1220 WOMC 104.3 Detroit MI PI 7ADA  
 1312 \*CBBL 100.5 London ON CBC2, through WVOR!  
 1400 CKPC 91.1 Brantford ON new with RDS PI 2BF0

**Mike Bugaj – 69 Sherman Road – Enfield, CT 06082  
 Heard on an Onkyo T450 RDS tuner and APS13 @ 25 feet agl.**

April 22 2004 Tr

1550 WGMS 103.5 Washington DC classical, 300mi  
 1555 WMGQ 98.7 Washington DC country Q-country

May 17 2004 Tr

0714 WTSR 102.5 Buffalo NY star 102.5 310mi  
 0716 WNED 94.5 Buffalo NY classical music  
 0830 CBL 94.1 Toronto ON classical 350 miles  
 0830 CHUM 104.5 Toronto ON calls and Ricky Lee Jones music

**TRANSLATOR NEWS CONTINUED FROM PAGE 35**

VT Middlebury W237BF \*95.3 (WRVT 88.7 Rutland), h,v  
 VT Rupert W226AL \*93.1 (WVPR), h,v  
 W266AK \*101.1 (WVPR), h,v.  
 VT South Bennington (just SW Bennington) W228BL \*93.5 (WBTN-FM 94.3 Bennington), h,v  
 VT Woodstock W295AL \*106.9 (WVPR), 100 w h,v  
 VA Front Royal W268AV 100.5 (WSIG 96.9 Mount Jackson), 250 h,v  
 VA Heathsville WCNV \*89.1 5000 v, 93 m, d-a, with 48% power 240-250\*, Commonwealth Public Broadcasting Corporation.  
 VA Leesburg W282AM 104.3 (WTOP-FM 107.7 Warrenton), h,v.  
 See also "Deletions," below.

VA Roanoke W226AM \*93.1 (KAWZ, as received via W204BH 88.7 Boones Mill), h,v  
 VA Winchester W239AO 95.7 (WSIG), h,v  
 WA Wishram K298AN \*107.5 (KZAS-LP 95.1 Hood River OR translator), h,v  
 WI Hudson W239AM 95.7 (KNXR 97.5 Rochester MN), 250 h,v  
 WI Plymouth W300AT 107.9 (WXER 104.5 Plymouth), 250 h,v  
 WI Ripon W269BG \*101.7 (WEMI 91.9 Appleton), h,v  
 WI Waupun W282AN 104.3 (WBKY 95.9 Portage), 250 h,v  
 VI Charlotte Amalie W224BD \*92.7 (WIVH 90.1 Christiansted), h,v

# Weak Signal Techniques

BOB COOPER

## WHEN YOU HAVE FOUND SIGNALS

And they are several hundred metres (or even several miles) from the home or homes you wish to serve. What next?

Transporting one or more signals over distances to 750 metres suits simple transmission lines quite well; and the cost need not be excessive.

Beyond 750 metres (and this is hardly a fixed number) when you will serve only one or a few homes, the dollar-sensible transportation technique is through the air (as it would also be if the terrain to be covered is difficult or impossible to access). Now we are on quasi-legal ground: the use of airwaves to transport signals without RFS/Department of Commerce approval. Let's be up front about this.

The regulations prohibit the turn-on of non-licensed, non-approved transmitters. If everyone in the country fabricated and turned-on their own private transmitters, the airwaves would collapse in chaos. The major danger is that any such transmitting device will radiate signal not only on its intended frequency (a TV channel) but also, quite unintentionally and quite to the surprise of the builder, on another frequency; such as 121.500 MHz. or square in the middle of an aircraft communications band; dangerous!

UHF television channels 39-41 and 42 are set aside for low power television broadcasting. Additionally, unlicensed TV transmission (with restrictions) is permissible under certain circumstances in the region inclusive of channels 39-42, and a few channels either side of these. An example of this is the (approved) Videosender unit (sold by K Smith Electronics generating a TV signal in this region (typically pre-tuned to channel 36 when removed from the box; but channel adjustable) and sold as a wireless extender of a user's VCRTV (antenna). The measured output of this unit is in the region of 60 dBmV (100 dBuV) and it comes with an attached extendable (420 cm) whip antenna.

Other options include Radio2 (form) licensed on-channel boosters' (at radiated power levels so low [10 microwatts] as to make them marginally useful; under Part XIII of the Regulations) or going through a more complicated licensing procedure with higher power boosters'; both discussed at some length in Tech Bulletin 9303.

For many installations, conventional low-loss transmission lines are more practical as such lines can carry several channels of TV simultaneously and there is little likelihood of interfering with other services operating a relatively simple cable connected remote antenna site. Fence lines (with posts in place) offer a handy way to route open-wire (ladder) line with appropriate line-mounting spacers/insulators along the way. Coaxial cable can usually be simply left on the ground provided there is minimal human and stock traffic in the area. See Tech Bulletin 9305 for a discussion of establishing transmission line distribution (ie., mini-cable systems) or TB9303 for calculating through-air losses in a cable-less service.

Generally speaking, all transmission lines exhibit line loss (attenuation) and the system designer looks first at the amount of signal (before and after amplification) available at the antenna site, calculates the line loss in various types of lines available over the distance required, and then determines whether there is sufficient signal available to reach the TV set(s) at the bottom without additional amplification.

Line-powered amplifiers can be placed on any type of TV transmission line and subject to certain limits of amplifier cascading you can string kilometres of cable with properly spaced repeater amplifiers without degrading the signal quality past the point of consumer acceptance (Tech Bulletins 9303 and 9305).

## TYPICAL CABLE LOSSES

Cable loss increases per unit of cable length (such as over 100 metres of cable) as the frequency increases. Channel 1 TV will transport nearly twice as far in cable before amplification

is required as channel 11 TV At UHF, the difference is more dramatic as the table on page 23 illustrates.

Assume a 20 dB gain amplifier to send signal through as much cable as you can string-out. You start with 0 dBmV at the input to the amplifier (producing +2() dBmV at the start of the cable/wire run) and you run cable for as far as you can go until you have returned to the 0 dBmV original level. How much cable will be possible?

A 20 dB gain masthead amplifier is easily placed at the antenna and line-powered even through appropriate 300-450-600/75 ohm matching transformers (with power passing built-in); thus for bands I and III the limiting factor in this hypothetical installation is the loss at band III (258 metres in 7 foam; 321 metres in 11 foam).

One (or more) line amps can also be line powered in the system to extend the total cable length permissible. But there are caveats. All line amps have cascading limits (ie., the number of amps that can be placed in series along a line), and input levels to each amplifier following the first must be carefully adhered to within manufacturer stated parameters (to avoid undesirable modulation products developing); Tech Bulletins 9303 and 9305.

As impressive as 1 or 6 inch (line to line spacing) open wire fine appears to be in the tables on page 23 (certainly going nearly 6.3 kilometres with only 20 dB of gain going in at channel 11 is impressive!), fabricating the line (6" spaced line is not an off-the-shelf item) and properly suspending it on wooden posts without metal (such as fencing wire) near to it (to avoid coupling effects to from the nearby wires) can be a challenge. Note that 12" spaced (300 ohm) and 1" spaced (450 ohm) open wire line is off-the-shelf available .Also note the loss difference between ½" open wire (300 ohm) and 1" open wire line (450 ohm) is barely measurable if each is properly designed. One danger with some of the readily available 300 or 45() ohm open wire line is that the insulating (typically plastic) spacers which are sometimes used to retain the line-to-line spacing dimension are poorly quality-controlled and improperly affixed to the twin (parallel) wires. The surest way to have problems with any open wire line is to have non-uniform line-to-line spacing along the run.

Do-it-yourself note: Quality, low loss, open wire line is unbeatable for low-loss, long transmission runs. Conversely we have seen installations where common #12 galvanized fencing wire has been stapled (!) to wooden fence posts at about inch spacing and run hundreds of metres as a quick and dirty transmission line. You match the impedances in and out of such a line by marking off the last full-wave-length (measured as the wavelength in space 'times' the velocity of propagation [factor] of the open wire line: typically .95) on each and gradually taper match the two lines to a 1/2" (300 ohm) spacing over the full wavelength (at the lowest frequency in use on the system). There must be a matching section on both ends for the impedance transformation. or you will lose many (tens of) dB on the line. Note this is not a substitute for properly designed open wire line but it may work for you if you make an effort to maintain uniform (6" suggested) wire to wire spacing with the wires under tension to reduce whipping in winds. Metal posts would be a mistake since each metal post would act as a short to the lines!

## HOW MUCH ANTENNA GAIN?

If your installation will not create a minimum of 250 microvolts (-12 dBmV/48 dBuV) at the antenna output terminals before masthead amplification on the weakest channel to be transported, you could be using the wrong antenna system. Either you stack additional antennas of the same design to increase the gain, or you upgrade to a higher gain antenna. Here's the logic.

- 1) The TV receiver requires approximately 1,000 microvolts for a TASO Grade 1 picture.
- 2) There will be transmission line loss from the antenna to the TV.
- 3) Sooner or later the customer will want a second TV set outlet, which adds splitter loss to the equation.
- 4) You have the option of installing a 20 dB gain masthead amplifier.

## TASO?

The basis for this grading is the signal + noise to noise ratio; abbreviated SNR. The television receiver has a noise-threshold or floor; determined by the noise figure of the TV receiver as it processes a 7 (8)MHz wide video (t audio) signal. The TASO assumption is that the typical TV set has a noise floor/threshold of -40 dBmV or 10 microvolts (abbreviated uV

here). If the noise floor is at -40 dBmV(20 dBuV), logic says an excellent quality signal which requires a 40 dB SNR will be 40 dB stronger than the noise floor; ie., 0 dBmV (1,000 uV). Which leads us to one more table.

Well now, if all it takes to have a Grade 1 picture is 0 dBmV. why can't you stick a 30 dB gain masthead amplifier on a -30dbmV antenna signal and produce an extremely high quality picture? Fair question. Signal voltage alone is not what determines picture quality. It's that ratio between noise and the signal voltage. If you start out with a noise level of -40 dBmV and a signal level of -30 dBmV, the best signal noise to noise ratio you can expect is 10 dB. Amplifying a -30 dBmV signal by 30 dB produces 0 dBmV of signal airtight. But, the same amplifier also increases the -40 dBmV noise to -10 dBmV. You began. before amplification, with a SNR of 10 dB. After amplification you still have a 10 dB SNR: only now both the signal and the noise voltages are 30 dB stronger! Is that the end of the story? Not quite.

Recall the TV set has its own noise figure and this translates to a noise floor or threshold. With a properly engineered masthead amplifier and its careful use, you can reduce the TV receiving system (the system is the entire antenna . masthead . TV set configuration) noise\_figure. The -40 dBmV TV set noise floor assumed for TASO wading can be reduced by improving the TV set with a proper masthead amplifier. Recall from pages 56 in this Tech Bulletin that your customer's TV receiving system faces two noise sources; the noise generated within the system (a natural side-effect of electrons moving under voltage stimulation) and the noise coming into the system from manmade sources (electrical systems, ignition systems et al). We can reduce (but not eliminate the noise originating inside of our receiving system. The outside noise sources can be located and repaired (not always practical), phased (reduced in signal level) with appropriate antenna stacking techniques, or accepted.

Noise originating within the system can be dealt with using well accepted mathematical formulae. The results are predictable, repeatable. Noise from outside is subject to a wide variation in amplitude (level), type (ie., short pulses. a constant buzz, etc.) and resonant frequency.

## **REDUCING THE INTERNAL 'NOISE FLOOR'**

Disconnect the aerial from the TV set and tune to a channel not in use in your area. The picture tube is alight with dancing black and white dots and the audio if cracked open 'hisses' at you: noise.

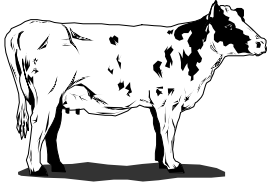
Now connect a masthead amplifier to the TV, but do not connect an aerial. Compare the apparent noise present with and without the masthead amp. It looks stronger; it sounds stronger, with the amp; right?

When electrons flow in a circuit, because of voltage applied, there is electron—noise. This noise is random with frequency (ie.. very broadband). The TV receiver alone has a measurable amount of internally generated noise. We'll call it the noise threshold or floor. For you to have a quality TV picture through this receiver, the ratio of signal voltage to noise voltage must approximate the SNR depicted on the TASO grading scheme. By reducing the noise threshold/floor of the TV set, you can obtain the high TASO demanded ratios of SNR with a lower amplitude TV signal voltage. That in a nutshell is the primary reason you employ a low noise (as opposed to a not-so-low-noise) masthead amplifier.

There are applications in this world for masthead amplifiers which produce voltage gain without pretext of being low noise. For example, if you are in a medium to high signal area, a not-so-low-noise masthead amplifier will increase signal voltages to allow long transmission line runs, or (if carefully used) multiple-set splitting. The amplification devices (ie., bi-polar transistors, field-effect transistors) in such not-so-low-noise mastheads differ from their low noise masthead cousins because they are for a different application. You cannot have ultra low masthead noise and, also, medium to high. masthead amplification of strong signals in the same masthead unit: the two are not compatible engineering requirements.

In selecting a masthead amplifier, then. you must be certain the unit you are choosing is intended for the job requirement. A low-noise masthead unit is not advisable in a medium to high signal area; a high gain, higher noise figure unit equally wrong in a weak signal area.

(To be Continued)



# WORLDWIDE TV-FM DX ASSOCIATION

## 2004 Annual Convention

### Omaha, NE, July 30-August 1, 2004

Make plans now to attend the annual WTFDA convention, hosted this year by Matthew Sittel and Michael Hawk.

Our host location for the event is the Park Plaza Regency Lodge, located at 909 South 107<sup>th</sup> Avenue in Omaha, conveniently located one block east of the I-680 exit at Pacific Street. The hotel room rate for the convention is \$79/night for two doubles or one queen bed. This rate includes a complimentary hot breakfast with waffles made to order. All rooms feature a microwave, refrigerator, coffee maker, iron, in-room safe and radio with CD player. There is also a small business center with internet access. To make your reservations and receive the special rate, the hotel has asked that you call them directly at (402) 397-8000. *Be sure to mention WTFDA to get the \$79 rate; we have a block of rooms set aside for us at this rate!*

We have received permission from Park Plaza to set up antennas. Feel free to bring along your favorite DX equipment and try it out-hopefully we'll have some DX! Bring along video or audio tapes and photos of your DX to share; we'll have equipment set up to share your catches.

The registration fee for the convention is \$28, which includes the Saturday night banquet on-site at the Park Plaza. You can purchase additional banquet tickets for spouses or other guests at the rate of \$24 per additional meal.

If you plan on attending, please take a moment to fill out the form below and mail it along with check or money order for fees to **Matthew Sittel, 15013 Eureux Cir., Bellevue, NE 68123**. Registration deadline is June 30, 2004. If you have questions e-mail Matt at [mcsittel@cox.net](mailto:mcsittel@cox.net) or Mike at [thisisatest22@yahoo.com](mailto:thisisatest22@yahoo.com).

We hope to see YOU at WTFDA 2004 Omaha!



## CONVENTION 2004 REGISTRATION FORM

Name : \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

E-mail: \_\_\_\_\_

	Fee	Number	Total
Registration :	\$28	x _____	= _____

Additional banquet tickets:	\$24	x _____	= _____
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Total amount enclosed (check/money order, payable to Matthew Sittel): \_\_\_\_\_

# CONVENTION 2004

*July 23-25*

Bruce Bacon and Frank Aden will be hosting the 2004 IRCA Convention at the Rodeway INN, 1115 North Curtis Rd, Boise ID 83706 from July 23-25 2004. Room rates are \$59.95 plus 12% tax which comes to \$67.14. This rate is the same for a single, two people one bed or two people two beds. Extra person charge is \$5.00, with tax, \$5.60 and with a roll a way bed is additional \$8.00, \$8.96 with tax. This includes a continental breakfast.


Reservations can be made at 1-800-272-5003. Deadline is July 12, 2004.

Convention fee is \$25.00. Instead of having a set menu for a banquet we will have a dinner Saturday night, July 24, in the hotel restaurant where attendees can select off the regular menu.

Tentative schedule will include station studio/transmitter tours, auction, 40th Anniversary Quiz and a visit to Bonneville Point on the Oregon Trail where there have been several Beverage DXpeditions. More details are to follow.

Any items to be donated for the auction can be sent to Frank Aden, 4096 Marcia Pl., Boise ID 83704. E-mail inquires can be sent to: [IRCA2004@aol.com](mailto:IRCA2004@aol.com).

**I-184 Connector & Curtis Road Exit**



**RODEWAY INN**  
1115 North Curtis Road  
Boise, Idaho 83706  
(208) 376-2700



**1964-2004**



# FM TRANSLATOR NEWS

Courtesy of Bruce Elving

## New Translators Granted

*Translators have less than 100 watts unless shown otherwise; technical parameters for most LPFM stations are not announced, but can be up to 100 watts at 30 meters above average terrain (horizontal, vertical or both h & v)*

- AL Alexander City W231AP \*94.1 (WJSP-FM 88.1 Warm Springs GA translator), h,v  
AL Bay Minette W266AL \*101.1 (WPAS 89.1 Pascagoula MS), h,v  
AL Brewton W262AR 100.3 (WKXK 96.7 Pine Hill AL translator), h,v  
AL Brundidge W204BG \*95.9 (WAXU 91.1 Troy), h,v  
AL Clio W243AX 96.5 (WVFJ 93.3 Manchester GA), h,v  
AL Daphne W278AP 103.5 (WJZD 94.5 Long Beach MS), h,v  
AL Demopolis W278AQ \*103.5 (WALN 89.3 Carrollton AL), h,v  
AL Gadsden W230AV \*93.9 (WYFD 91.7 Decatur), h,v  
AL Gorgas (transmits from the N.W. arm of Birmingham) W270AQ \*101.7 (WGIB 91.9 Birmingham), h,v  
AL Mobile W239AP 95.7 (WJZD), h,v  
AL Mount Jefferson (between Opelika and Valley) W221BH 92.1 (WVFJ), 250 h,v  
AL Ridge Grove (NW side of Auburn) W294AR \*106.7 (WAYW 89.9 New Johnsonville TN), h,v  
AL Robertsdale W279AT 103.7 (WJZD), h,v  
AL Union Springs W300AU \*107.9 (WJSP-FM), h,v  
AK Whale Pass (SSW Petersburg) K241AS \*96.1 (KFSK 100.9 Petersburg), 150 watts h(orizontal).  
AZ Buckeye K240DC \*95.9 (KLVA 105.5 Casa Grande), h,v  
AZ Cottonwood K273AN \*102.5 (KNAQ 89.3 Prescott), h,v  
K277AR 103.3 (KAFF-FM 92.9 Flagstaff), h,v  
AZ Fort Defiance K231AS 94.1 (KYVA-FM 103.7 Grants NM), h,v  
AZ Lake Havasu City \*89.3 440 watts v, -156 m, Educational Media Foundation; to be \$, gr  
AZ Prescott K291AL \*106.1 (KNAU 88.7 Flagstaff), h,v  
AZ Seligman K265DU 100.9 (KRRK 101.1 Lake Havasu City AZ), h,v  
AR El Dorado K286AQ \*105.1 (KYFL 89.5 Monroe LA), 250 h,v  
AR Magnolia K296FC \*107.1 (KBPW 88.1 Hampton), 250 h,v  
CA Barstow K230AO \*93.9 (KGBM 89.7 Randsburg), h,v  
K270AR \*101.9 (KWTB 91.9 Ridgecrest), h,v  
CA Baywood Park-Los Osos K229AK \*93.7 (KLVH 88.5 San Luis Obispo CA), h,v  
CA Boron K300AW 107.9 (KWCY-FM 98.5 Cathedral City), h,v  
CA Borrego Springs \*99.3 Borrego Springs Christian Center, LPFM  
CA El Paso de Robles (Paso Robles) K233AV \*94.5 (KLVH 88.5 San Luis Obispo), h,v  
CA Merced K244DV \*96.7 (KXSR 91.7 Groveland), h,v  
K258AU \*99.5 (KUOP 91.3 Stockton), h,v  
CA Oceanside K253AD \*98.5 (KLVJ 100.1 Julian), h,v  
CA Oroville K222AQ \*92.3 (KCHO 91.7 Chico) 250 h,v  
CA San Pasqual K245AI 96.9 (KRTM 88.9 Temecula), v  
CA Willits K273AO 102.5 (KSAY 98.5 Fort Bragg), h,v  
CO Julesburg K232DD 94.3 (KADL 102.9 Imperial NE), 250 h,v  
DE Smyrna W254AT \*98.7 (WJPH 89.9 Woodbine NJ), h,v  
FL Crystal River W265BJ \*100.9 (WYFE 88.9 Tarpon Springs), h,v  
FL Dunnellon W259AI \*99.7 (WWKQ 88.7 Clermont), h,v  
FL Inverness W280DK \*103.9 (WJIX-LP 103.1 Homosassa), 170 h,v  
FL Jacksonville W223AL \*92.5 (WJLH 90.3 Flagler Beach), 250 h,v  
FL Layton W240BF \*95.9 (WAVQ 88.3 Key West), h,v  
FL Ramrod Key W285DRI \*104.9 (WAVQ 88.3 Key West), h,v  
GA Athens \*93.3 Athenstown Media Enthusiasts Association, LPFM  
GA Eastman W221BK 92.1 (WVFJ), h,v  
GA Louisville ("Lewis-ville") W287AO \*105.3 (WJTG 91.3 Fort Valley), h,v  
GA McRae W221BJ 92.1 (WVFJ), h,v  
GA Milledgeville W245AN \*96.9 (WAFJ 88.3 Belvedere SC), h,v  
GA Pembroke W229AJ \*93.7 (WDCO-FM 89.7 Cochran), h,v  
GA Soperton W221BI 92.1 (WVFJ), h,v  
GA Sparta W253AM \*88.5 (WAFJ), h,v  
GA Sylvania W224BE \*92.7 (WAFJ), h,v  
GA Washington W252BH \*98.3 (WAFJ), h,v  
HI Honolulu K288FB \*105.5 (KHRI 90.7 Hollister CA, received via K214CY 90.7 Mali), h,v. See also "Facilities," below.  
ID Eagle K247AS \*97.3 (KARJ 88.3 Kuna), h,v  
ID Pocatello K275AN \*102.9 (KYFO-FM 95.5 Ogden UT), h,v  
IL Canton W282AO \*104.3 (WVCL-LP 95.7 Galesburg), h,v  
IL Dahinda W264AZ \*100.7 (WVCL-LP), h,v  
IL Effingham W229AI 93.7 (WDZQ 95.1 Decatur), h,v  
IL El Paso W234AO \*94.7 (WSOG 88.1 Spring Valley), 250 h,v  
IL Vienna W241AH \*96.1 (WAAJ 89.7 Benton KY), h,v  
IL Watseka W238AP 95.5 (WDZQ), h,v  
IL White Hall W227AR \*93.3 (WTSG 90.1 Carlinville), h,v  
IN Bloomington W276BF \*103.1 (WJLR 91.5 Seymour), h,v  
IN Clinton W294AQ 106.7 (WDZQ), h,v  
IN Roselawn W276BG \*103.1 (WAWF 88.3 Kankakee), h,v  
IA Algona K242BA \*96.3 (KNWC-FM 96.5 Sioux Falls SD), h,v  
IA Centerville K239AK \*95.7 (KAYP 89.9 Burlington), 250 h,v  
IA Fort Dodge K237DF \*95.3 (KBDC 88.5 Mason City), h,v  
IA Harlan K272DY \*102.3 (KNWC-FM), 250 h,v  
IA Iowa Falls K268AX \*101.5 (KBDC), h,v  
IA Le Mars K245AM \*96.9 (KILV 107.5 Castana), h,v  
IA Marshalltown K279AN \*103.7 (KNWS-FM 10.9 Waterloo), h,v  
IA Mason City K252DW \*98.3 (KTIS-FM 98.5 Minneapolis MN), h,v  
IA Mount Pleasant K271AJ \*102.1 (KAYP 89.9 Burlington), h,v  
IA Muscatine K277AU \*103.3 (KNWS-FM), h,v  
IA New Hampton K234AP \*94.7 (KNWS-FM), h,v  
K245AL \*96.9 (KNWS-FM), h,v  
IA Northwood K271AI \*102.1 (KBDC), 210 h,v  
IA Winterset K269ET \*101.7 (KMLV 88.1 Ralston NE), h,v  
KS Chanute K247AT \*97.3 (KWRI 89.1 Bartlesville OK), h,v  
KS Colby K291AO 106.1 (KRKU 98.5 McCook NE), 250 h,v  
KS Dodge City K267AM \*101.3 (89.9 Dodge City application), 250 h,v  
KS El Dorado K238AO \*95.5 (KCFN 91.1 Wichita), h,v  
KS Newton K228DY \*93.5 (KYFW 88.3 Wichita), 250 h,v  
KS Oberlin K225AM 92.9 (KICX 96.1 McCook), 250 h,v;  
K291AN 106.1 (KRKU), 250 h,v  
KY Benton W248AI 97.5 (WMXX 103.1 Jackson TN), h,v  
KY Berea W298AO 107.5 (WWAG 107.9 McKee), h,v  
KY Clinton W238AN \*95.5 (WAAJ), h,v  
KY Hickman W273AK \*102.5 (WAAJ), h,v  
KY Hopkinsville W268AL \*101.5 (WAAJ), h,v  
KY Mount Sterling W296BC 107.1 (WIOK 107.5 Falmouth KY), h,v  
KY Murray W243AZ 96.3 (WMXX 103.1), h,v  
KY Paducah W258AN \*99.5 (WTRT 88.1 Benton), h,v  
LA Alexandria K267AN \*101.3 (KYFL 89.5 Monroe), 250 h,v.  
This despite K288ER \*105.5 there, another KYFL translator, which increases to 250 watts (h,v).  
LA Boothville-Venice K276EQ 103.1 (WJZD), h,v  
LA Buras-Triumph K225AL \*92.9 (WAOY 91.7 Gulfport MS), h,v;  
K243AS 96.5 (WJZD), h,v  
LA Jonesville K232DC \*94.3 (KOUZ 89.9 Alexandria), h,v  
MD Ocean City W235AL 94.9 (WOLC 102.5 Princess Anne), 170 h,v  
MD Pocomoke City W234AR \*94.7 (WXHL-FM 89.1 Christiana DE), h,v  
MA Gloucester W268AM 101.5 (KBIC 105.7 Raymondville TX), h,v. Said to receive KBIC off air, which might be only during rare skip openings. I have asked the FCC about this. Jim Bradshaw of the FCC agrees there is a problem, since KBIC is commercial. "We will contact the translator to rebroadcast another nearby station." The problem also applies to K262AT 100.3 Naples FL.

MA Great Barrington W254AU \*98.7 (WFCR 88.5 Amherst), 250 h,v  
MA Lee W252BG \*98.3 (WFCR), h,v  
MA Pittsfield W230AU \*93.9 (WFCR), h,v  
MA Williamstown W242AT \*96.3 (WFCR), 250 h,v  
MI Boyne City W238AO 95.5 (WFDX 92.5 Atlanta MI), 250 h  
MI Bronson W223AM 92.5 (WCEN 94.5 Hemlock), h,v  
MI Coldwater W246AU \*97.1 (WSAE 106.9 Spring Arbor), 120 h,v  
MI Rochester Hills W288BK \*105.5 (WAKL 88.9 Flint), h,v  
MN Bemidji K276EP \*103.1 (KFNW-FM 97.9 Fargo ND), h,v  
MN Big Lake K277AS \*103.3 (KHRI 90.7 Hollister CA, received via K208DV 89.5 St. Cloud), h,v. See also "Facilities," below.  
MN Blue Earth K270AQ \*101.9 (KNGA 91.5 St. Peter), 250 h,v  
MN Litchfield K277AT \*103.3 (WNCB 89.5 Duluth), 250 h,v  
MN Lynd K227AN \*93.3 (KNWC-FM), 140 h,v  
MN Redwood Falls K245AK \*96.9 (KKLW 90.9 Willmar), 170 h,v  
MN Sleepy Eye K272DZ \*102.3 (WNCB), 250 h,v  
MN Virginia W265BK \*100.9 (WNCB), h,v  
MN Windom K245AJ \*96.9 (KBOJ 88.1 Worthington), 250 h,v  
MS Batesville W297AJ \*107.3 (WKVF 94.9 Byhalia), h,v  
MS Lucedale W227AP 93.3 (WJZD), h,v  
MS Marion W233AS \*94.5 (KLOV 89.3 Winchester OR, received via W213AV 90.5 Meridian MS), h,v  
MO Jefferson City K285FC \*104.9 (KGNV 89.9 Washington MO), 250 h,v  
MO Morrisville K227AO \*93.3 (KWND 88.3 Springfield), 210 h,v  
MO Stover K286AR \*105.1 (KCRL 90.3 Sunshine Beach), 250 h,v  
MT Bozeman \*107.7 Gallatin Christian Education Station, LPFM  
MT Great Falls K281AP 104.1 (KMBR 95.5 Butte), h,v  
NE Benkelman K223AQ 92.5 (KICX), 250 h,v  
K291AM 106.1 (KRKU), 250 h,v  
NE Imperial K282AH 104.3 (KKAS 96.5 Julesburg CO), 210 h,v  
NE McCook K221EG 92.1 (KFNF 101.1 Oberlin KS), 250 h,v  
K291AP 106.1 (KADL 102.9 Imperial), 210 h,v  
NE North Platte K268AY 101.5 (KICX), 250 h,v  
NV Tonopah K283AL \*104.5 (KQMC 90.1 Hawthorne), h,v  
NH Claremont W294AP \*106.7 (WKVJ 89.7 Dannemora NY), h,v  
NM Albuquerque K275AO 102.9 (KTAO 101.9 Taos), h,v  
NM Artesia K289AR \*105.7 (KLYT 88.3 Albuquerque), h,v. This despite K218AK 91.5 there, another KLYT relay.  
NM Corrales K255AU 98.9 (KKIT 99.9 Angel Fire), h,v  
NM Cuba K224CW 92.7 (KPCL 95.7 Farmington), h,v  
K260AP \*99.9 (KTGW 91.7 Fruitland NM), h,v  
NM Hobbs K284AQ \*104.7 (KLYT), h,v. This despite K211CW 90.1, another KLYT relay there.  
NM Questa K229AL \*93.7 (KLYT), 250 h,v  
NM Ruidoso Downs K234AQ \*94.7 (KMTH 98.7 Maljamar), h,v  
NM Socorro \*89.5 100000 h,v; 99 m, Educational Media Foundation, to be \$, gr.  
NM Thoreau K250AI \*97.9 (KTGW), h,v  
K270AP 101.9 (KPCL), h,v  
NM Tucumcari K237DE \*95.3 (KRGV 102.9 Amarillo TX), h,v  
NM Williamsburg K270AS 101.9 (KNUW 95.1 Santa Clara NM), h,v  
NY Batavia W295AM \*106.9 (WZ XV 99.7 Palmyra), h,v  
NY Bath W261AG 100.3 (WVIN 98.3 Bath), h,v  
NY Beacon W280DJ 105.9 (WAWZ 99.1 Zarephath NJ), h,v  
NY Carthage W262AT 100.3 (WOTT 100.7 Henderson), h,v  
NY East Hampton W262AS \*100.3 (WGRS 91.5 Guilford CT), 250 h,v  
NY Smithtown W228BI \*93.5 (WNYC-FM 93.9 New York NY), h,v  
NC Asheville W251AN \*98.1 (WNCW 88.7 Spindale NC), h,v  
NC Black Mountain W239AQ \*95.7 (WLFJ-FM 89.3 Greenville SC), h,v  
NC Burlington W224BC \*92.7 (KAWZ 89.9 Twin Falls ID, via W243AL 96.5 Browns Summit), v  
NC Liberty \*97.7 Health & Liberty, Inc., LPFM  
NC South Goldsboro W222AO 92.3 (WCLN-FM 107.3 Clinton NC), h,v  
NC Stanley WVEM-LP \*100.5, Voice of Evangelism Cathedral, Inc., LPFM. Seeks 100.7.  
NC Weaverville W231AR \*94.1 (WLFJ-FM), h,v  
ND Casselton K293AQ \*106.5 (translator of ungranted 89.3 Jamestown ND), 210 h,v  
ND Devils Lake K283AM 104.5 (KHRT-FM 106.9 Minot), 250 h,v  
[250 h,v  
ND Tower City K240DB \*95.9 (89.3 Jamestown),/  
ND Urbana (just W. Jamestown) K231AQ \*94.1 (89.3 Jamestown), 250 h,v  
OK Little Ponderosa K222AS \*92.3 (KJRT 88.3 Amarillo TX), 250 h,v  
OK Sand Springs K293AP \*106.5 (KWRI 89.1 Bartlesville), 210 h,v  
OK Shady Grove (west of Tulsa) K246AJ \*97.1 (KBQC 88.5 Independence KS), h,v  
PA Bloomsburg W282AP 104.3 (WKAB 103.5 Berwick), 250 h,v  
PA Butler W253AL \*98.5 (WRWJ 88.1 Murrysville), h,v  
PA Chambersburg W264AY \*100.7 (WJTL 90.3 Lancaster), h,v  
PA Gettysburg W291AY \*106.1 (WJTL), h,v  
PA Johnstown W263AW \*100.5 (WDUQ 90.5 Pittsburgh), h,v  
PA Kittanning W254AV \*98.7 (WPCL 97.3 Spangler), h,v  
PA Ligonier W281AI \*104.1 (WDUQ), h,v  
PA Muncy W234AQ \*94.7 (WGRC 91.3 Lewisburg), h,v  
PA New Baltimore W222AP \*92.3 (WDUQ), h,v  
PA Somerset W281AH \*104.1 (WDUQ), h,v  
PA Waynesburg W281AG (WKJL 88.1 Clarksburg WV), h,v  
W286AL \*105.1 (WRIJ 106.9 Masontown), h,v  
SC Charleston W234AP \*94.7 (WLPE 91.7 Augusta GA), h,v  
SC Marion W228BJ \*93.5 (WKVC 88.9 North Myrtle Beach), h,v  
SD Brookings K235AS \*94.9 (KNWC-FM), 170 h,v  
SD Mitchell K231AR \*94.1 (KNWC-FM 96.5 Sioux Falls), 250 h,v  
K280ER \*103.9 (KNWC-FM), 170 h,v  
SD North Sioux City (although FCC calls it in the nonexistent "North Sioux City IA"; Dale Bickel of the FCC sent map showing its transmitter is in IA, but the city is SD!) K228DZ \*93.5 (KNWC-FM), 210 h,v. Then he said he's checking with colleagues what to call its location.  
SD Rapid City K300AX 107.9 (KLMP 97.9 there), 250 h,v  
SD Watertown K223AP \*92.5 (WNCB), h,v. Seeks 91.9.  
TN Dyersburg W288BL \*105.5 (WAAJ), h,v  
TN Huntingdon W271AN \*102.1 (WTRT), h,v  
TN Jefferson City W222AN \*92.3 (WHCB 91.5 Bristol), h,v  
TN Martin W243AY \*96.5 (WVHM 90.5 Benton KY), h,v  
W273AL \*102.5 (WAAJ), h,v  
TN Paris W242AS \*96.3 (WAAJ), h,v  
W270AR \*101.9 (WTRT), h,v  
TX Austin K274AX 102.7 (KHLB 106.9 Burnet ["burn-it"]) TX h,v  
TX Eagle Pass \*98.3 Maverick County TX, LPFM  
TX Floresville K237DC 95.3 (KMFR 105.9 Hondo, as received from K279AB San Antonio), 250 v  
TX Floydada K249DU 97.7 (KNNK 100.5 Dimmitt), h,v  
TX Fredericksburg K267AO \*101.3 (KTSW 89.9 San Marcos), 250 h,v  
TX Killeen \*104.5 Metroplex Adventist Hospital, Inc., LPFM  
TX Linn (not "Lynn") \*107.1 Hidalgo County Texas, LPFM. Linn is NNE Edinburg, W. Raymondville.  
TX Meadow K264AN \*100.7 (KQRI 90.9 Lubbock), h,v  
TX Memphis K229AJ \*93.7 (KPDR 90.5 Wheeler), 100 h,v  
TX Odessa K292FL \*106.3 (KFLB-FM 90.5 Odessa), h,v  
TX Perryton K222AP \*92.3 (KPDR), 100 h,v  
TX Plainview K222AR \*92.3 (KJRT 88.3 Amarillo), 100 watts h,v  
TX Pleasanton K292FK \*106.3 (KAYK 88.5 Victoria), 250 h,v  
TX San Antonio K279AB 103.7 (KMFR), v. This translator is reinstated.  
TX Seminole K290AN \*105.9 (KLVW 88.7 West Odessa), h,v  
TX Thorndale K290AM \*105.9 (KNCT-FM 91.3 Killeen), h  
TX Tulia K235AR \*94.9 (KJRT), 100 h,v  
TX Uvalde \*95.5 Community Council of SW Texas, Inc., LPFM  
UT Moab K268AV 101.5 (KWSA 100.9 Price), 250 h,v. K281AJ 104.1 still exists there—another KWSA translator.  
VT Brattleboro W233AR \*94.5 (WVPR 89.5 Windsor), h,v  
VT Burlington W227AQ 93.3 (WNCS 104.7 Montpelier), h,v

(continued on page 28)

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\*\*\*\*\*

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