City	ST Ch.	City	ST Ch.	Distance (km)
SIOUX FALLS	SD 48	SIOUX FALLS	SD 47	40.5000
SIOUX FALLS	SD 47	SIOUX FALLS	SD 48	40.5000
ARLINGTON	TX 42	LAKE DALLAS	TX 43	46.2000
DECATUR	TX 30	DENTON	TX 31	31.6000
DENTON	TX 31	DECATUR	TX 30	31.6000
EL PASO	TX 29	LAS CRUCES	NM 28	28.3000
GALVESTON	TX 23	HOUSTON	TX 24	38.5000
GALVESTON	TX 47	ROSENBERG	TX 46	28.7000
HARLINGEN	TX 31	MCALLEN	TX 30	24.9000
HOUSTON	TX 24	GALVESTON	TX 23	38.5000
KERRVILLE	TX 17	SAN ANTONIO	TX 16	19.0000
LAKE DALLAS	TX 43	ARLINGTON	TX 42	46.2000
LAREDO	TX 15	LAREDO	TX 14	21.9000
LAREDO	TX 14	LAREDO	TX 15	21.9000
MCALLEN	TX 30	HARLINGEN	TX 31	24.9000
ODESSA	TX 23	ODESSA	TX 22	27.1000
ODESSA	TX 22	ODESSA	TX 23	27.1000
ROSENBERG	TX 46	GALVESTON	TX 47	28.7000
SAN ANTONIO	TX 16	KERRVILLE	TX 17	19.0000
WICHITA FALLS	TX 22	LAWTON	OK 23	38.7000
MANASSAS	VA 36	WASHINGTON	DC 35	27.6000
RICHMOND	VA 25	RICHMOND	VA 24	12.5000
RICHMOND	VA 25	RICHMOND	VA 26	20.9000
RICHMOND	VA 24	RICHMOND	VA 25	12.5000
RICHMOND	VA 26	RICHMOND	VA 25	20.9000
SEATTLE	WA 41	TACOMA	WA 42	38.1000
SEATTLE	WA 25	TACOMA	WA 26	40.6000
SPOKANE	WA 57	COEUR D'ALENE	ID 56	45.2000
SPOKANE	WA 54	SPOKANE	WA 55	40.2000
SPOKANE	WA 55	COEUR D'ALENE	ID 56	45.6000

City	ST Ch.	City	ST Ch.	Distance (km)
SPOKANE	WA 55	SPOKANE	WA 54	40.2000
TACOMA	WA 26	SEATTLE	WA 25	40.6000
TACOMA	WA 42	SEATTLE	WA 41	38.1000
EAGLE RIVER	WI 17	RHINELANDER	WI 16	12.4000
FOND DU LAC	WI 44	MAYVILLE	WI 43	31.0000
MAYVILLE	WI 43	FOND DU LAC	WI 44	31.0000
RHINELANDER	WI 16	EAGLE RIVER	WI 17	12.4000
CHARLESTON	WV 55	HUNTINGTON	WV 54	28.7000
HUNTINGTON	WV 54	CHARLESTON	WV 55	28.7000
WHEELING	WV 56	STEUBENVILLE	OH 57	41.2000
LANDER	WY 8	LANDER	WY 7	34.7000
LANDER	WY 7	LANDER	WY 8	34.7000

D

US OFFICE PRODUCTS

Technical Note for Understanding NTSC and DTV Service Area Maps

Specific attributes of the NTSC and DTV service area maps are provided below. Note that the maps are plotted to the scale indicated in the lower right hand corner. The scale is the same for both maps so that they can be directly compared, except for stations that have a minimum or a maximum power cap. Reference latitude and longitude, counties and some major geographical features are also plotted on the maps. The correlation between these maps and calculations performed by the FCC has been verified to be very close. The same terrain database was used. However, algorithmic differences between the Broadcasters Caucus model (adapted to the FCC methodology) and the FCC model may result in small coverage or interference differences between the two methods.

NTSC Map

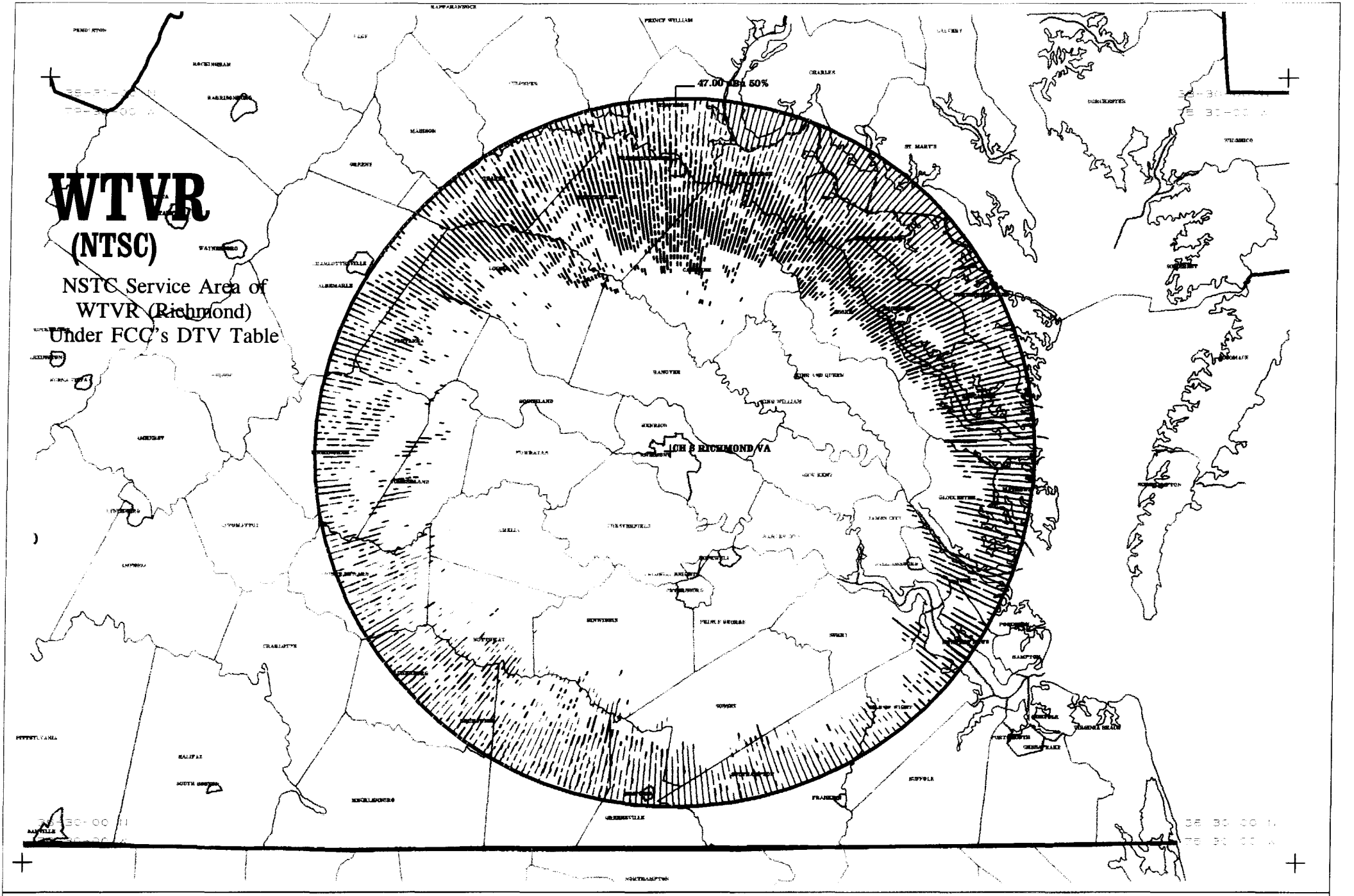
The NTSC map is based on the April 3, 1997 version of the FCC engineering database. Operating parameters of the NTSC operation taken from that database include tower location, antenna height above average terrain (HAAT), directional antenna pattern (if any), and effective radiated power (ERP). From this information, the conventional predicted Grade B contour using the FCC propagation curves is plotted in black.

Within this predicted Grade B contour, service area losses are plotted (as radial lines every one degree and evaluated every one km along each radial) for the effects of terrain using the Longley-Rice propagation model (marked in red), interference from either other NTSC stations (marked in green) or DTV stations (marked in blue) that exceed the criteria established by the FCC for acceptable viewing. The service area that remains is the white area within the Grade B contour. Service outside the predicted Grade B contour is not evaluated.

DTV Map

The plot of the DTV channel uses the same applicable parameter values as for the NTSC map: i.e., tower location, antenna height, antenna directional pattern are the same for the DTV channel analysis as for the paired NTSC channel. Using the FCC F(50,90) curves, the noise-limited service area for the DTV channel is plotted in red.

Within this predicted noise-limited area, service losses are plotted (as radial lines every one degree and every one km along each radial) for the effects of terrain using the Longley-Rice propagation model (marked in red), interference from either other DTV stations (marked in green) or NTSC stations (marked in blue) that exceed the criteria established by the FCC for acceptable viewing. The service area that remains is the white area within the noise-limited contour.

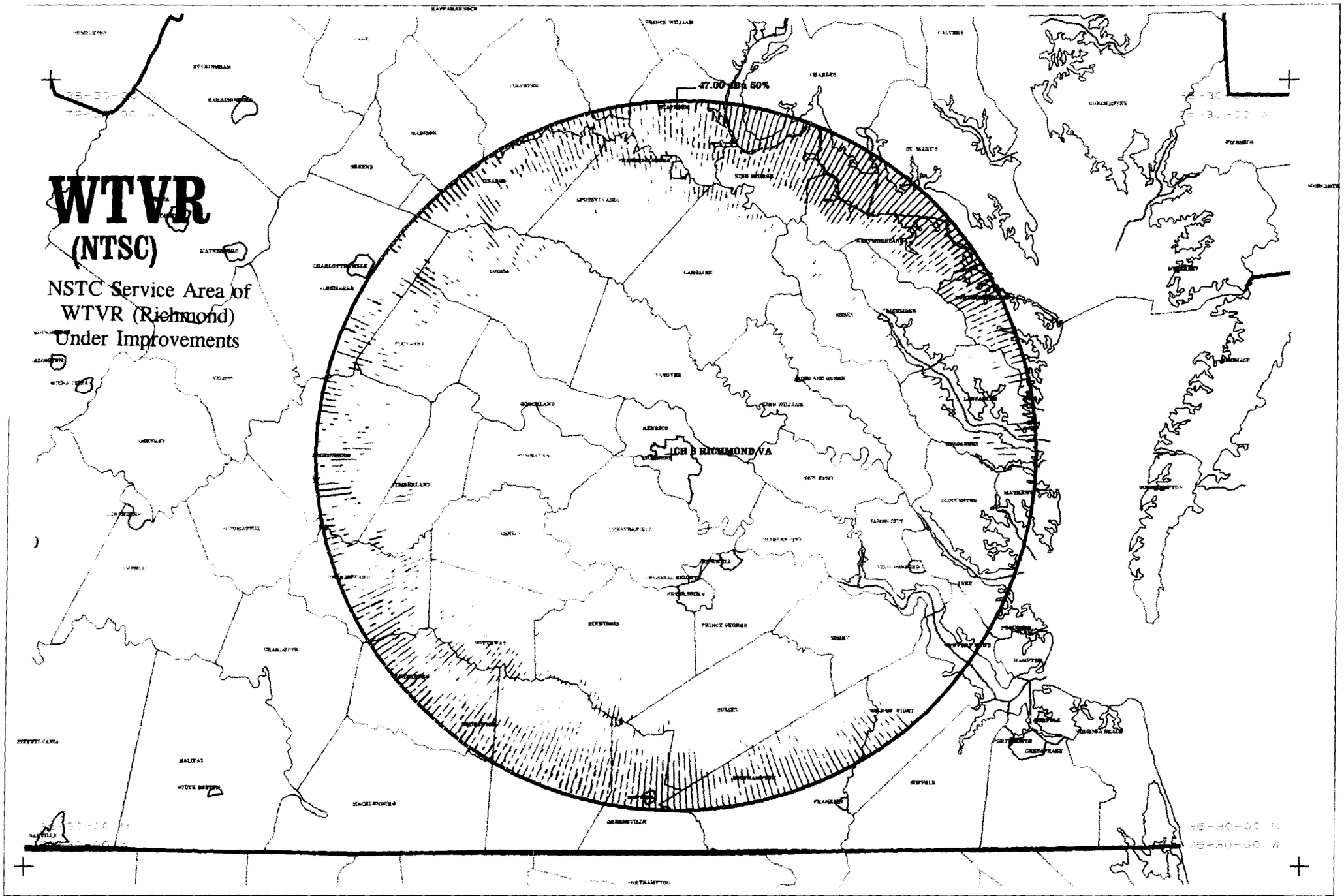


Terrain loss - Red, Interference NTSC - Green, DTV - Blue

WTVR-NTSC Ch. 6 ERP 100.0 HAAT 268.9

RICHMOND VA Dir. Ant. NONE

TechWare, Inc.
14101 Parke Long Ct. Suite 206
Chantilly, VA 20151-1645
703-222-5842



Terrain loss - Red, Interference NTSC - Green, DTV - Blue

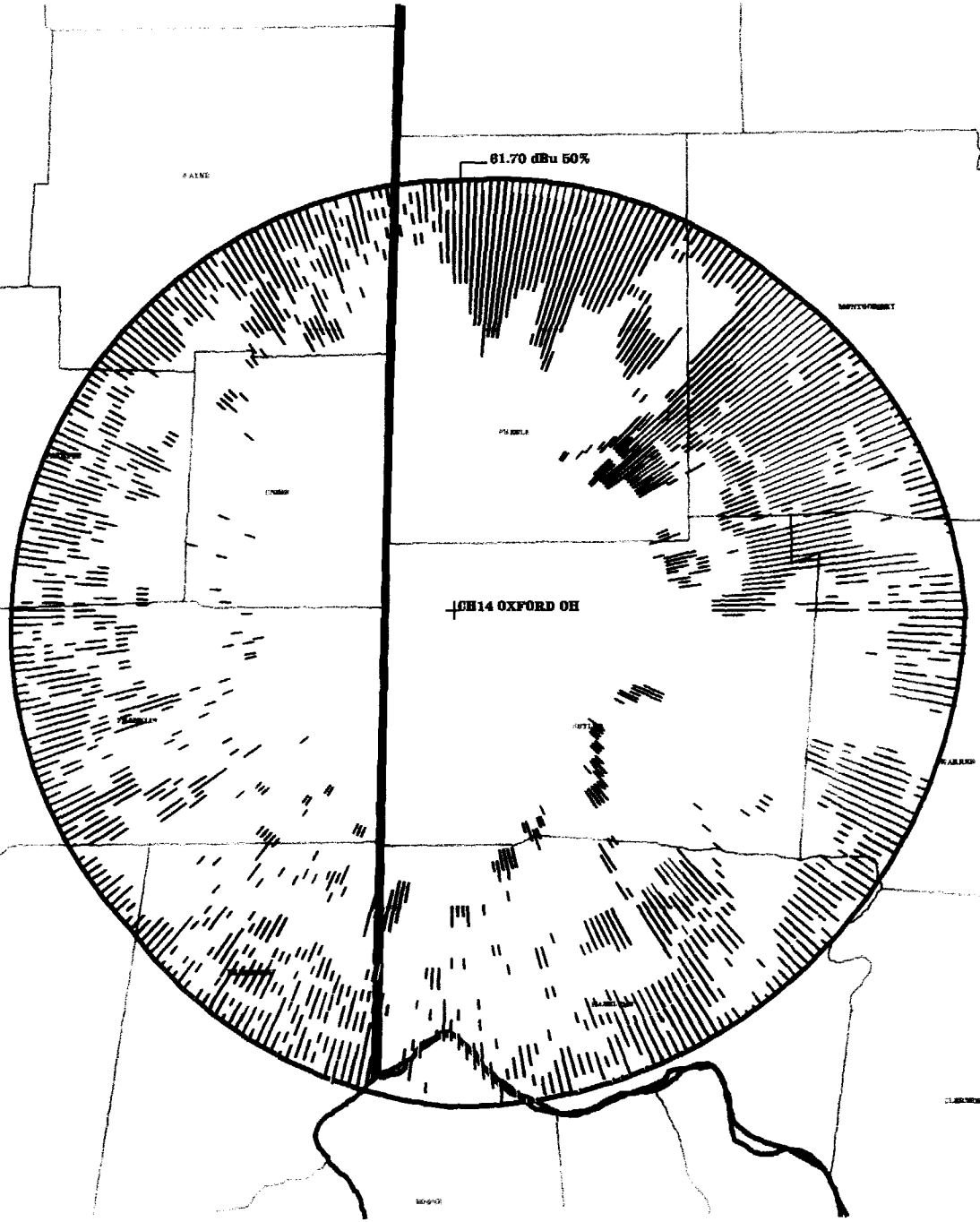
WTVR-NTSC Ch. 6 ERP 100.0 HAAT 268.9

RICHMOND VA Dir. Ant. NONE

TechWare, Inc.
14101 Parke Long Ct. Suite 206
Chantilly, VA 20151-1645
703-222-5842

WPTO
(NTSC)

NSTC Service Area of
WPTO (Oxford, OH)
Under FCC's DTV Table

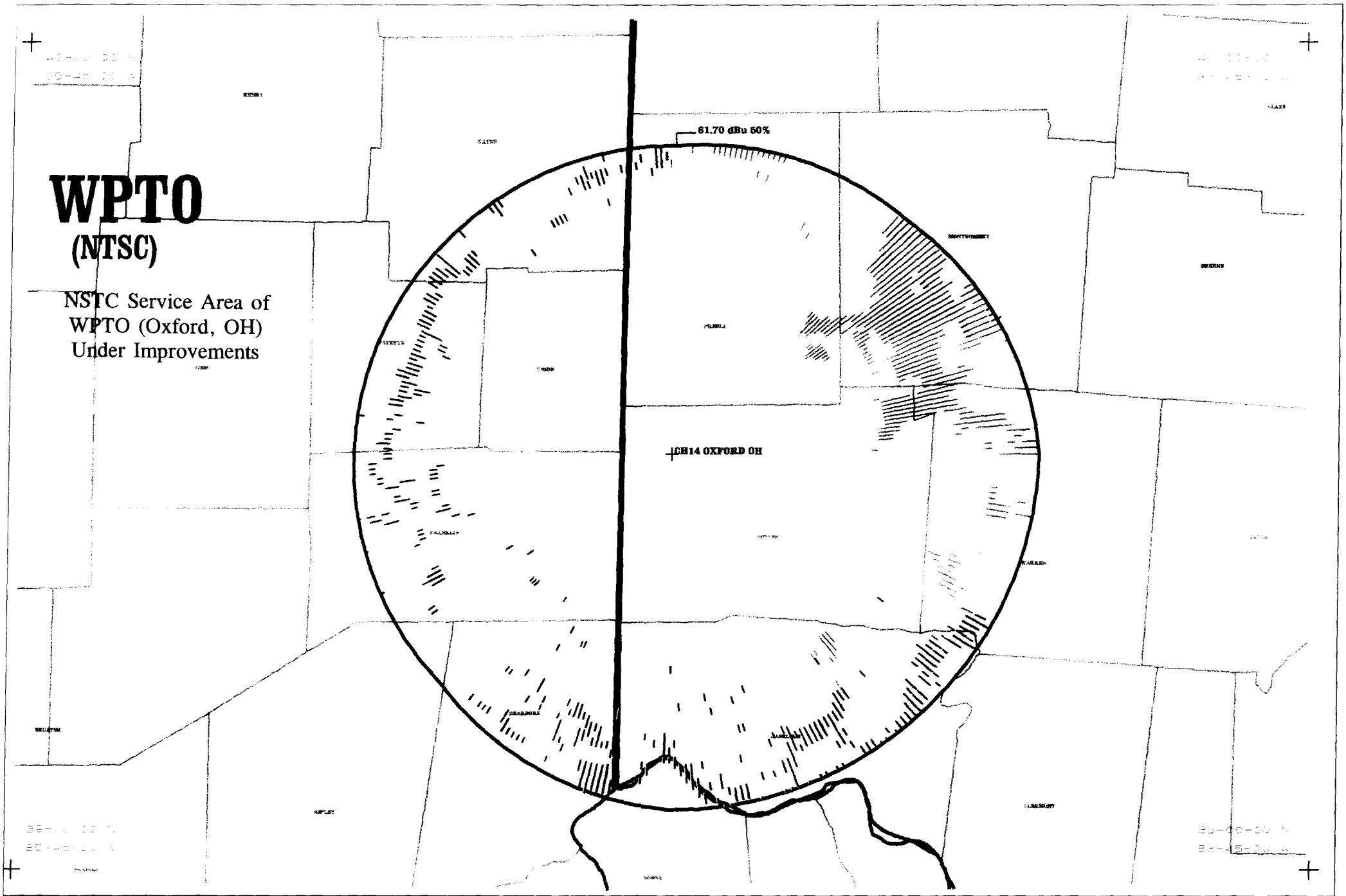


Terrain loss - Red, Interference NTSC - Green, DTV - Blue

WPTO-NTSC Ch. 14 ERP 204.0 HAAT 83.8

OXFORD OH Dir. Ant. NONE

TechWare, Inc.
14101 Parke Long Ct. Suite 206
Chantilly, VA 20151-1645
703-222-5842

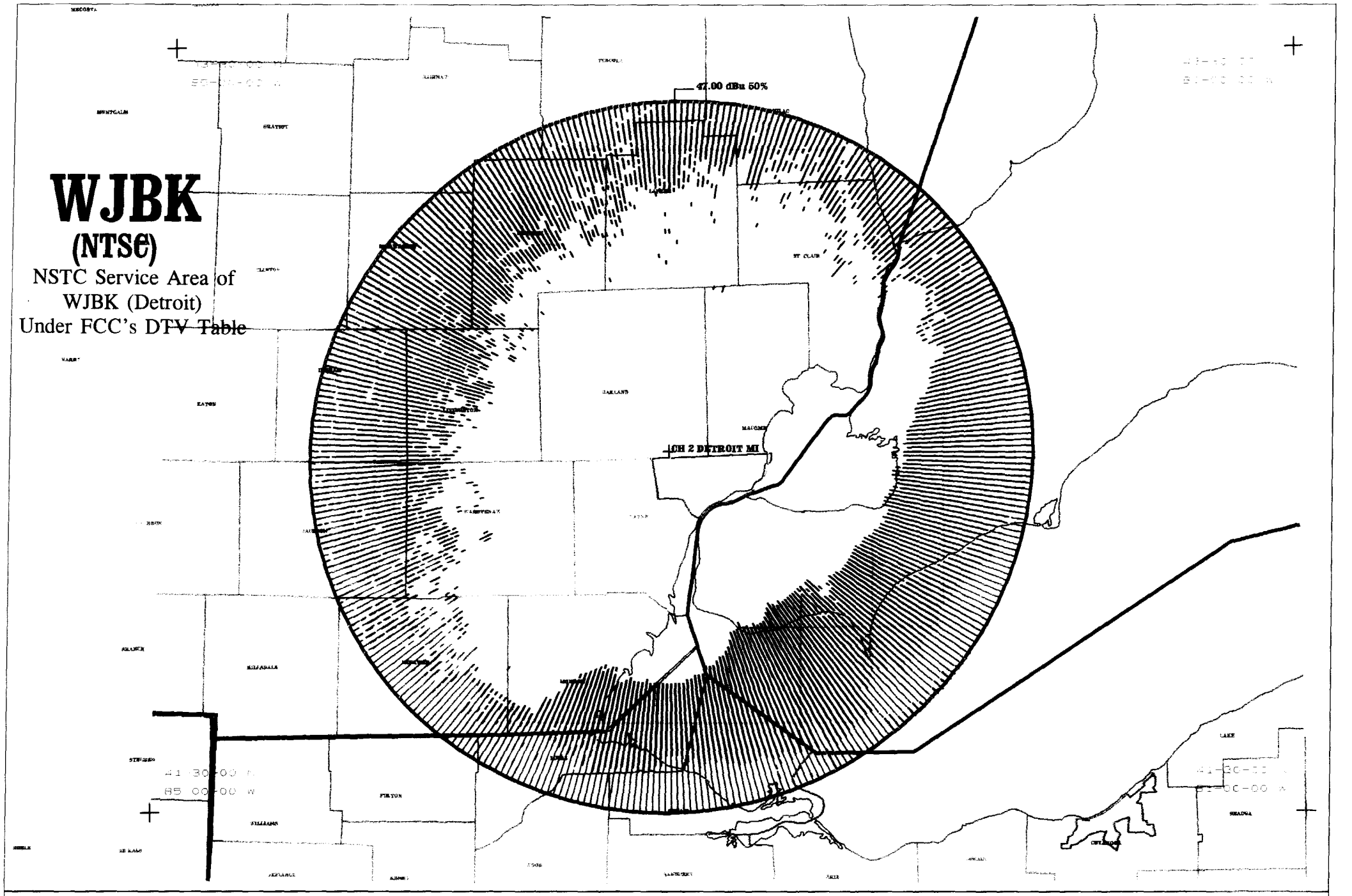


Terrain loss - Red, Interference NTSC - Green, DTV - Blue

WPTO-NTSC Ch. 14 ERP 204.0 HAAT 83.8

OXFORD OH Dir. Ant. NONE

TechWare, Inc.
14101 Parke Long Ct. Suite 206
Chantilly, VA 20151-1645
703-222-5842



Terrain loss - Red, Interference NTSC - Green, DTV - Blue

WJBK-NTSC Ch. 2 ERP 100.0 HAAT 306.2

DETROIT MI Dir. Ant. NONE

TechWare, Inc.
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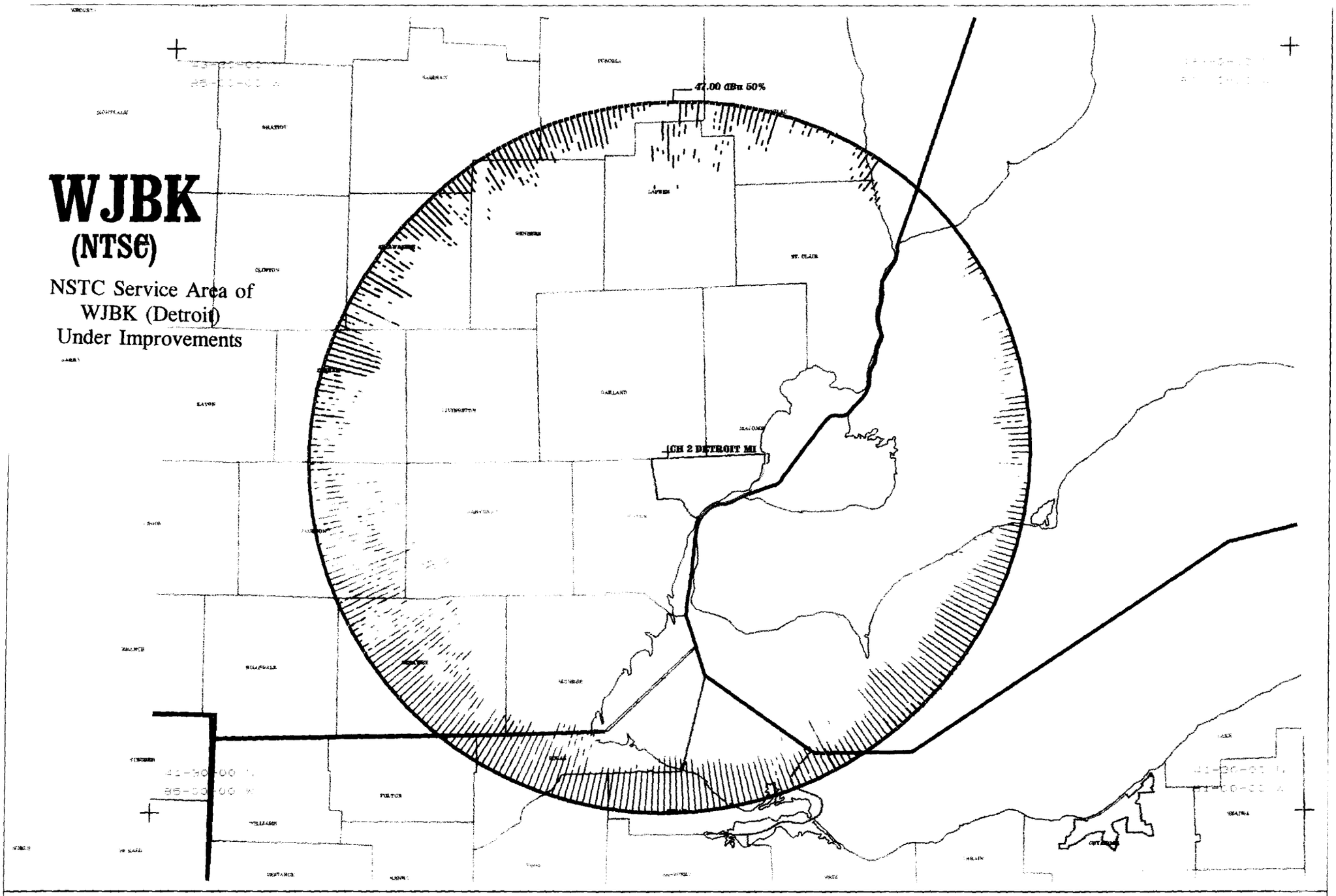
703-222-5842



Terrain loss - Red, Interference NTSC - Green, DTV - Blue

WJBK-NTSC Ch. 2 ERP 100.0 HAAT 306.2

DETROIT MI Dir Ant. NONE

TechWare, Inc.
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Chantilly, VA 20151-1645
703-222-5842

E

US OFFICE PRODUCTS

Technical Note for Understanding NTSC and DTV Service Area Maps

Specific attributes of the NTSC and DTV service area maps are provided below. Note that the maps are plotted to the scale indicated in the lower right hand corner. The scale is the same for both maps so that they can be directly compared, except for stations that have a minimum or a maximum power cap. Reference latitude and longitude, counties and some major geographical features are also plotted on the maps. The correlation between these maps and calculations performed by the FCC has been verified to be very close. The same terrain database was used. However, algorithmic differences between the Broadcasters Caucus model (adapted to the FCC methodology) and the FCC model may result in small coverage or interference differences between the two methods.

NTSC Map

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Within this predicted Grade B contour, service area losses are plotted (as radial lines every one degree and evaluated every one km along each radial) for the effects of terrain using the Longley-Rice propagation model (marked in red), interference from either other NTSC stations (marked in green) or DTV stations (marked in blue) that exceed the criteria established by the FCC for acceptable viewing. The service area that remains is the white area within the Grade B contour. Service outside the predicted Grade B contour is not evaluated.

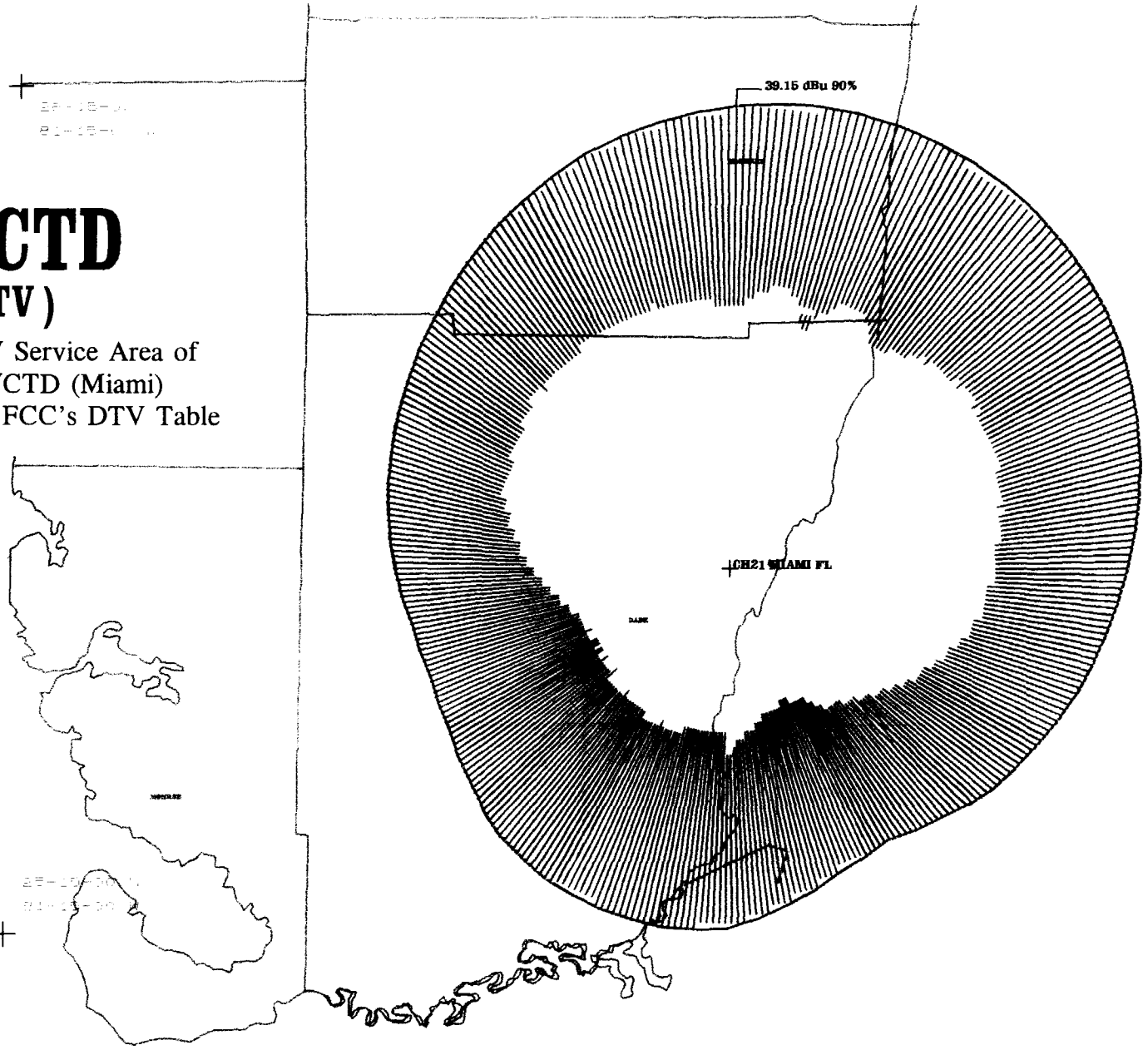
DTV Map

The plot of the DTV channel uses the same applicable parameter values as for the NTSC map: i.e., tower location, antenna height, antenna directional pattern are the same for the DTV channel analysis as for the paired NTSC channel. Using the FCC F(50,90) curves, the noise-limited service area for the DTV channel is plotted in red.

Within this predicted noise-limited area, service losses are plotted (as radial lines every one degree and every one km along each radial) for the effects of terrain using the Longley-Rice propagation model (marked in red), interference from either other DTV stations (marked in green) or NTSC stations (marked in blue) that exceed the criteria established by the FCC for acceptable viewing. The service area that remains is the white area within the noise-limited contour.

WCTD
(DTV)

DTV Service Area of
WCTD (Miami)
Under FCC's DTV Table



Terrain loss - Red, Interference NTSC - Blue, DTV - Green

WCTD-DTV Ch. 21 ERP 57.5 HAAT 101.7

MIAMI FL Dir. Ant. YES

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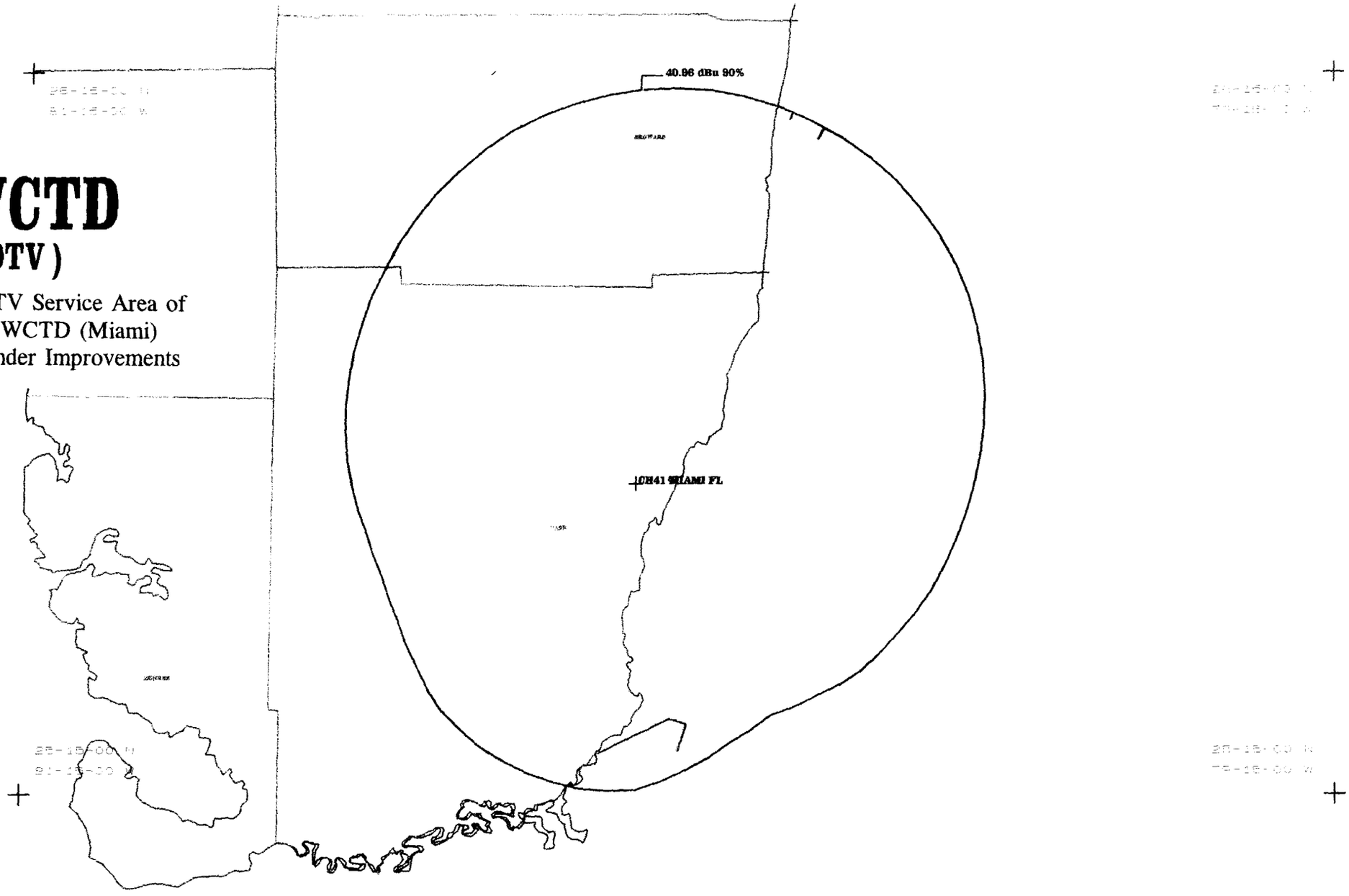
14101 Parke Long Ct. Suite 206
Chantilly, VA 20151-1645
703-222-5842

WCTD
(DTV)

DTV Service Area of
WCTD (Miami)
Under Improvements



Terrain loss - Red, Interference NTSC - Blue, DTV - Green

WCTD-DTV Ch. 41 ERP 87.2 HAAT 101.7

MIAMI FL Dir. Ant. YES

TechWare, Inc.
14101 Parke Long Ct. Suite 206
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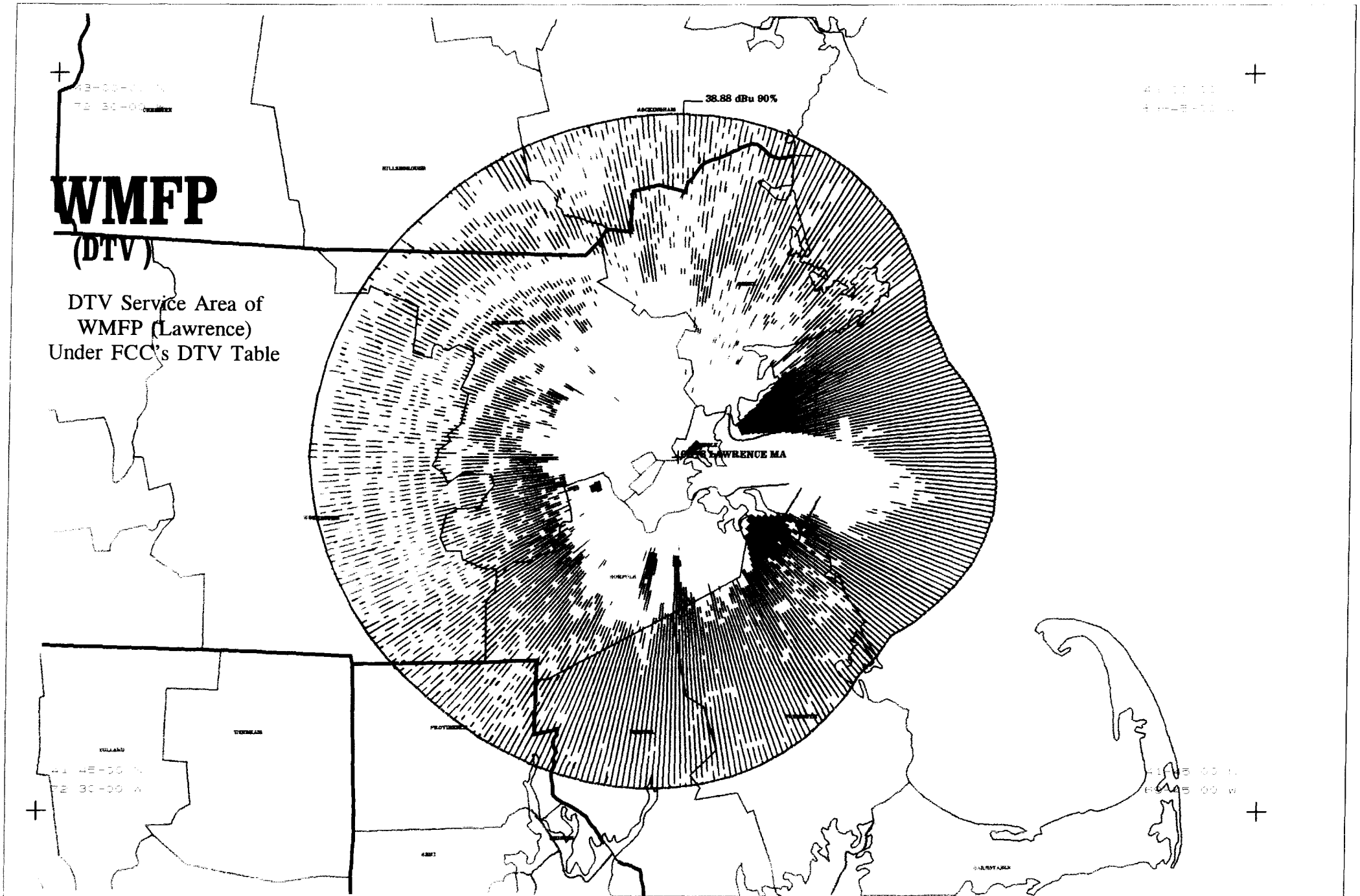
703-222-5842

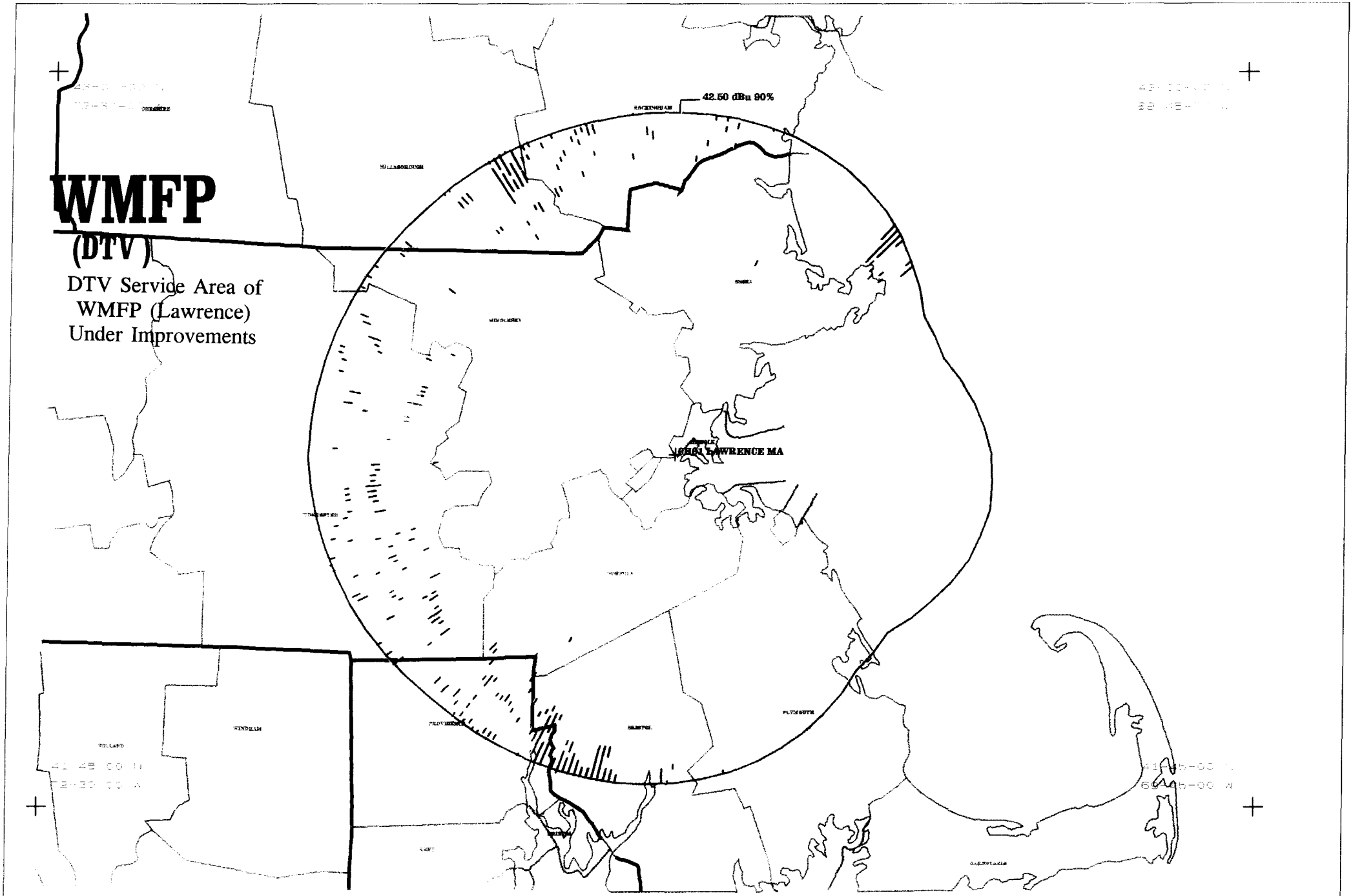


Terrain loss - Red, Interference NTSC - Blue, DTV - Green

WMFP-DTV Ch. 18 ERP 50.7 HAAT 184.6

LAWRENCE MA Dir. Ant. YES

TechWare, Inc.
14101 Parke Long Ct. Suite 206
Chantilly, VA 20151-1645
703-222-5842



Terrain loss - Red, Interference NTSC - Blue, DTV - Green

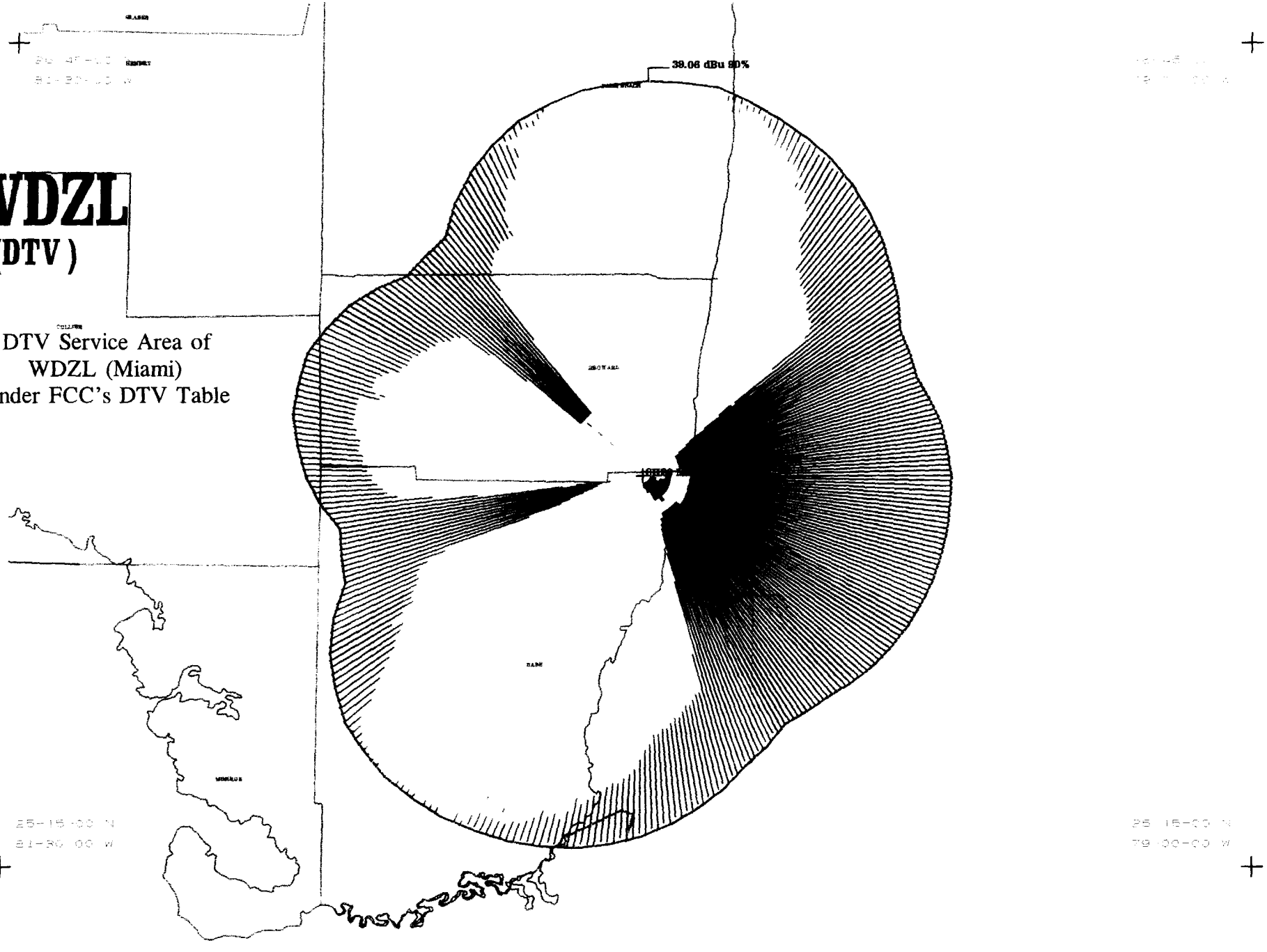
WMFP-DTV Ch. 61 ERP 116.6 HAAT 184.6

LAWRENCE MA Dir. Ant. YES

TechWare, Inc.
14101 Parke Long Ct. Suite 206
Chantilly, VA 20151-1645
703-222-5842

WDZL
(DTV)

DTV Service Area of
WDZL (Miami)
Under FCC's DTV Table

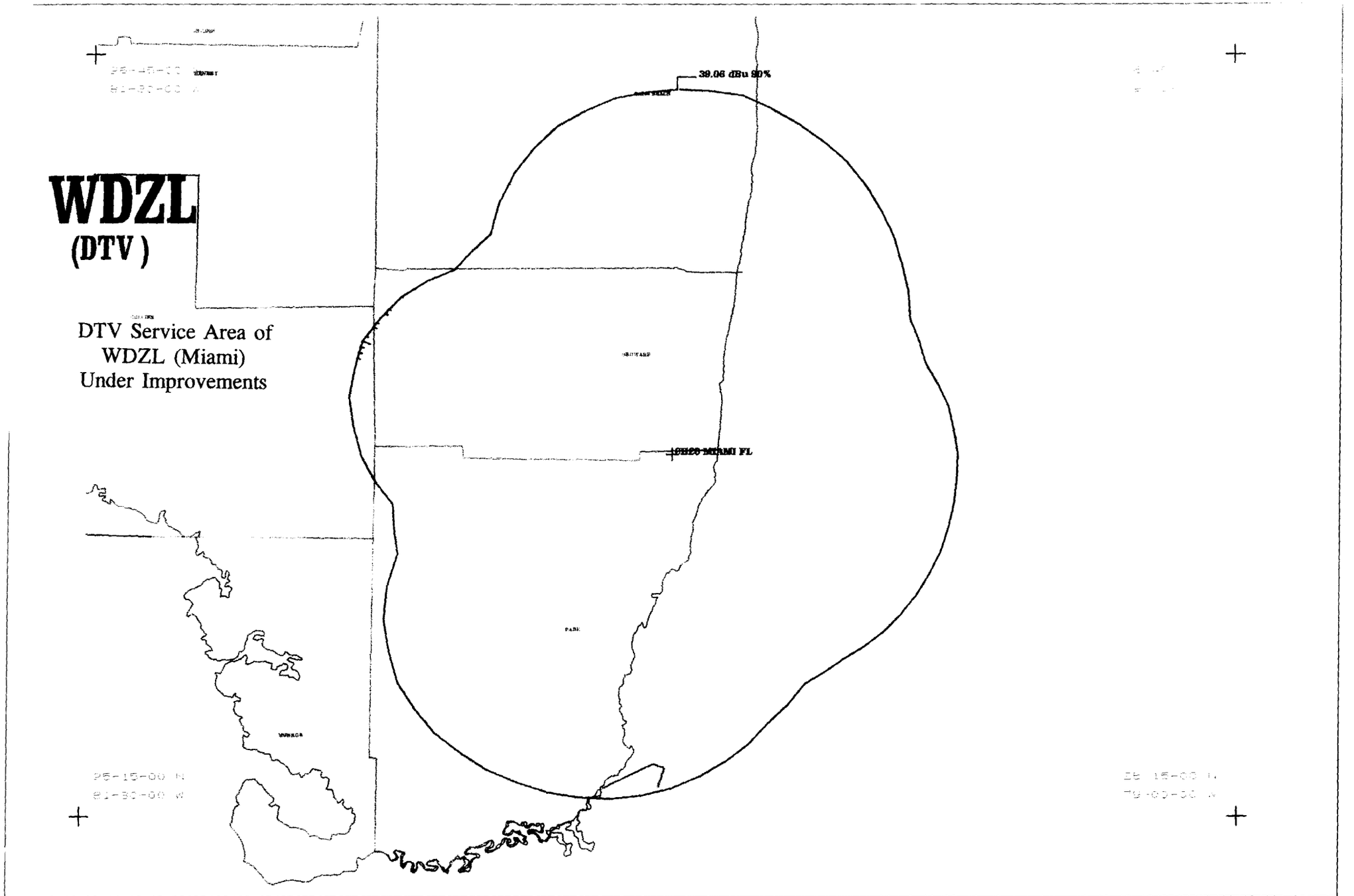


Terrain loss - Red, Interference NTSC - Blue, DTV - Green

WDZL-DTV Ch. 20 ERP 122.3 HAAT 275.9

MIAMI FL Dir. Ant. YES

TechWare, Inc.
14101 Parke Long Ct. Suite 206
Chantilly, VA 20151-1645
703-222-5842



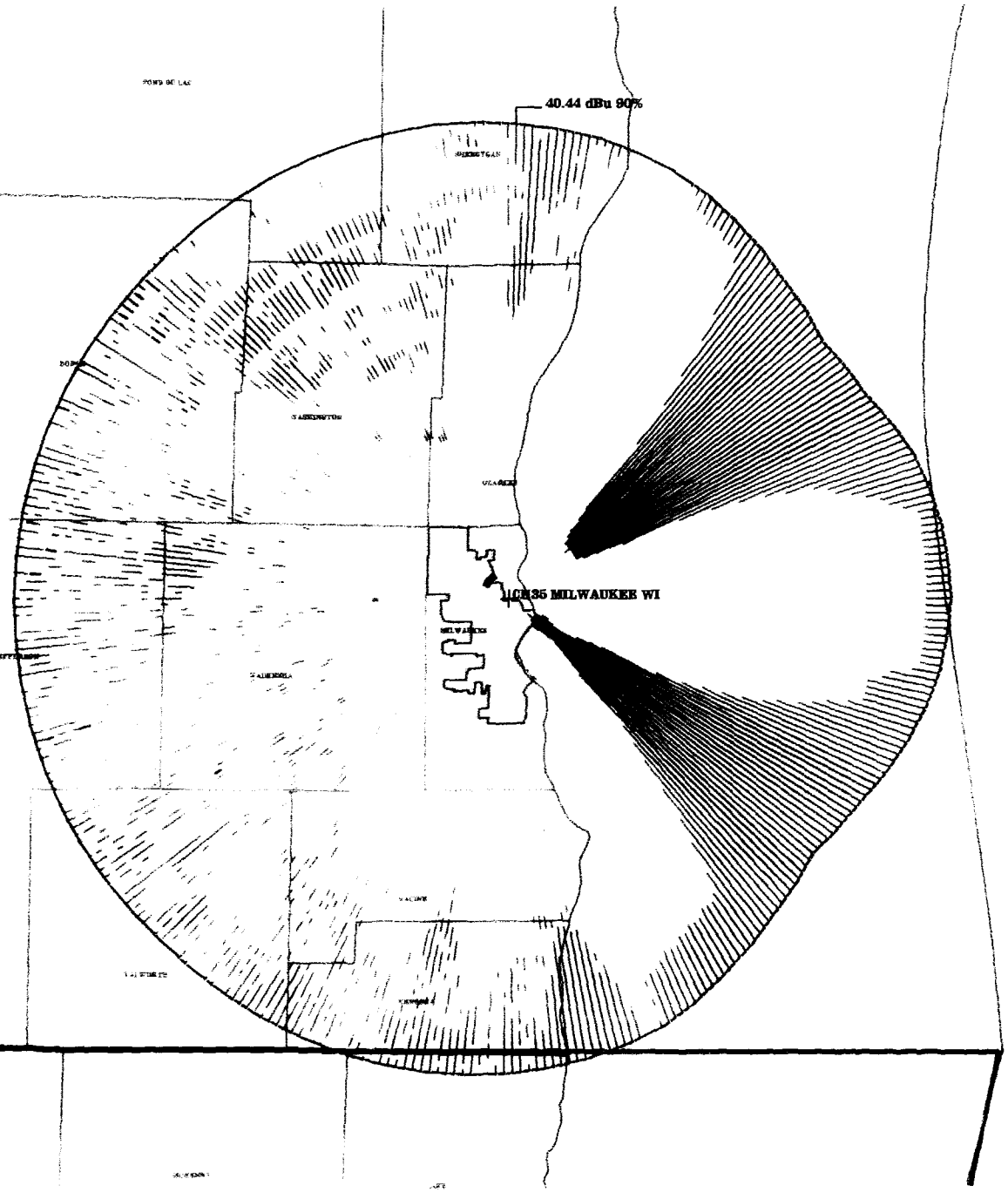
Terrain loss - Red, Interference NTSC - Blue, DTV - Green

WDZL-DTV Ch. 20 ERP 122.3 HAAT 275.9

TechWare, Inc.
14101 Parke Long Ct. Suite 206
Chantilly, VA 20151-1645
703-222-5842

WMVT
(DTV)

DTV Service Area of
WMVT (Milwaukee)
Under FCC's DTV Table

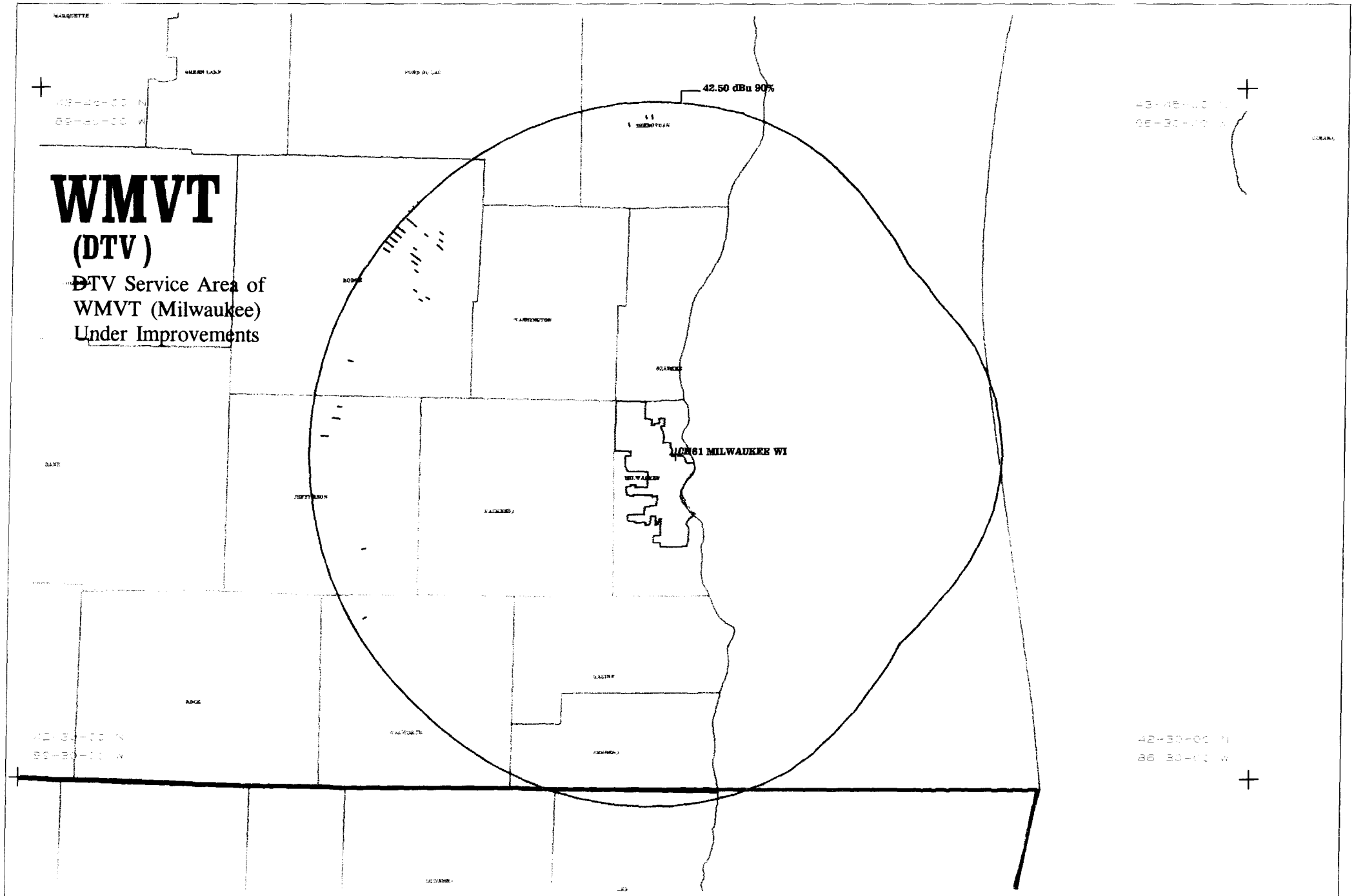


Terrain loss - Red, Interference NTSC - Blue, DTV - Green

WMVT-DTV Ch. 35 ERP 57.6 HAAT 290.8

MILWAUKEE WI Dir. Ant. YES

TechWare, Inc.
14101 Parke Long Ct. Suite 206
Chantilly, VA 20151-1645
703-222-5842



Terrain loss - Red, Interference NTSC - Blue, DTV - Green

WMVT-DTV Ch. 61 ERP 92.4 HAAT 290.8

MILWAUKEE WI Dir. Ant. YES

TechWare, Inc.
14101 Parke Long Ct. Suite 206
Chantilly, VA 20151-1645
703-222-5842

F

LIST OF DTV ASSIGNMENTS ON CHANNEL 60-69

LOCATION	LATITUDE	LONGITUDE	NTSC CHANNEL	DTV CHANNEL
FL LEESBURG	28-55-16	81-19-09	55	60
GA MONROE	33-44-22	84-00-14	63	60
KY HAZARD	37-11-34	83-11-16	35	60
KY NEWPORT	39-07-19	84-32-52	19	60
NY KINGSTON	42-05-06	74-06-00	62	60
CA RIVERSIDE	34-11-16	117-41-55	62	61
MA LAWRENCE	42-21-29	71-03-40	62	61
MI JACKSON	42-14-08	84-24-00	18	61
NY NEW YORK	40-42-43	74-00-49	31	61
OK OKLAHOMA CITY	35-34-24	97-29-08	62	61
WI MILWAUKEE	43-05-48	87-54-19	36	61
CA STOCKTON	37-53-35	121-53-58	64	62
IN RICHMOND	39-30-44	84-38-09	43	62
PA ALLENTOWN	40-33-54	75-26-26	69	62
PA PITTSBURGH	40-29-43	80-00-17	53	62
CA CONCORD	37-53-34	121-53-53	42	63
CT HARTFORD	41-46-27	72-48-20	24	63
MD FREDERICK	39-17-53	77-20-35	62	63
NC GREENSBORO	36-08-58	80-03-21	61	63
NH MANCHESTER	42-58-59	71-35-19	9	63
OH CANTON	41-06-33	81-20-10	67	63
VA GRUNDY	36-49-47	82-04-45	68	63
WI FOND DU LAC	43-21-44	88-53-45	68	63
CA OXNARD	34-19-51	119-01-22	63	64
NJ NEWARK	40-42-43	74-00-49	13	64
PA LANCASTER	40-02-04	76-37-08	8	64
PA PITTSBURGH	40-29-38	80-01-09	2	64
IL JOLIET	41-53-56	87-37-23	66	65
MA MARLBOROUGH	42-23-01	71-29-35	66	65
MD BALTIMORE	39-17-15	76-45-38	24	65
MI DETROIT	42-27-13	83-09-50	62	65
PA SCRANTON	41-26-09	75-43-33	64	65
CA SAN BERNARDINO	34-11-15	117-41-54	18	66
NJ VINELAND	39-44-07	74-50-29	65	66
OH CINCINNATI	39-12-01	84-31-22	64	66
PA HARRISBURG	40-20-44	76-52-09	21	66
SC ROCK HILL	35-21-44	81-09-19	55	66
CA SACRAMENTO	38-16-18	121-30-18	40	67
MA NEW BEDFORD	41-35-48	71-11-24	6	67
MI KALAMAZOO	42-18-24	85-39-26	52	67
NH KEENE	43-02-00	72-22-04	52	67
OH TOLEDO	41-40-03	83-21-22	24	67
PA ALLENTOWN	40-33-58	75-26-06	39	67
CT HARTFORD	41-46-30	72-48-04	18	68
DE WILMINGTON	39-41-43	75-17-55	61	68
PA ERIE	42-02-31	80-03-57	54	68
MD BALTIMORE	39-17-15	76-45-38	54	69

A

ADVANCED TELEVISION TECHNOLOGY CENTER

An Evaluation of the FCC RF Mask for the Protection of DTV Signals from Adjacent Channel DTV Interference

Document # 97-06

July 17, 1997

Advanced Television Technology Center, Inc.
1330 Braddock Place • Suite 200
Alexandria, VA 22314-1650
(703) 739-3850 • (703) 739-3230 fax
www.attc.org