

APPLICATION IN CONNECTION WITH A MODIFICATION  
TO RELOCATE DISPLACED LPTV STATION  
LPTV CHANNEL 16  
W65DP  
LIMA, OH

This engineering statement was prepared by Marconi Wireless in support of the attached application for the relocation of displaced LPTV station W65DP utilizing channel 16 for signal origination in Lima, OH.

**Channel Availability**

A search was conducted in accordance with OET Bulletin Number 69 (OET 69) and Parts 74.703, 74.705, 74.706, and 74.707 of the Commission's Rules to locate a suitable channel on which W65DP can relocate without interfering with the service areas of any other NTSC, DTV, or LPTV allotments or authorizations. The results of the study conclude that W65DP can relocate onto channel 16 without interfering with the service areas of any other stations.

**System Configuration**

W65DP LPTV channel 65 in Lima, OH proposes relocation to channel 16 due to displacement by a recent DTV allotment. Other pertinent details concerning the system design are as follows:

	<u>Current</u>	<u>Proposed</u>
Channel:	65 (779 MHz)	16 (485 MHz)
Transmitter Site		
Latitude:	40° 38' 3.0"	No Change
Longitude:	84° 12' 29.0"	No Change
Transmitter Output Power (Visual):	1.000 kw	0.9070 kw
Max Effective Isotropic Radiated		
Power (Visual):	4.860 kw	15.000 kw
Antenna Radiation Center Height (AGL):	302.6 m	190.0 m
Antenna Radiation Center Height (AMSL):	566.0 m	453.4.0 m
Overall Height of Antenna Structure (AGL):	341.1 m	No Change

**Interference to Cochannel DTV, NTSC, and LPTV Stations**

OET 69 specifies that any cochannel DTV stations within 250 km (155.3 miles) and NTSC or LPTV stations within 300 km (186.4 miles) of an LPTV station must be analyzed for potential interference into their noise limited service areas as predicted by the Longley Rice terrain dependent propagation model.

The following DTV stations are within 250 km and the following NTSC or LPTV stations are within 300 km of the herein-relocated LPTV station:

<u>Chan</u>	<u>Offset</u>	<u>Call</u>	<u>Location</u>	<u>Service</u>	<u>Dist km</u>
16	neg	W36AY	Zanesville, OH	LPTV	205.5
16	neg	N/A	Chatham, Ontario	LPTV	223.0
16	zero	W62CR	Columbus, OH	LPTV	108.9
16	pos	WPTD	Dayton, OH	NTSC	101.4
16	none	WHMB-TV	Indianapolis, IN	DTV	188.8
16	zero	WNDU-TV	South Bend, IN	NTSC	200.0

Pursuant to part 74.705 of the Commission's Rules and OET 69 the above listed NTSC stations are less than 300 km from the herein-relocated LPTV station and were analyzed for potential interference from the herein-relocated station.

Pursuant to part 74.706 of the Commission's Rules and OET 69 the above listed DTV station is less than 250 km from the herein-relocated LPTV station and was analyzed for potential interference from the herein-relocated station.

Pursuant to part 75.707, of the Commission's Rules and OET 69, the above listed LPTV stations are less than 300 km from the herein-relocated LPTV station and were analyzed for potential interference from the herein relocated station.

#### **Interference Analysis Methodology**

The Desired to Undesired Interference studies shown in Figure 1 and Figure 2 were conducted from the herein-relocated station to the cochannel LPTV and DTV allotments listed above. The subject analysis was conducted to determine if the noise limited service areas of the LPTV and DTV study stations are susceptible to interference from the herein-relocated LPTV station. The study was conducted using the Longley Rice terrain dependent propagation model (version 1.2.2) as described in OET 69. Additional study parameters were derived using the planning factors and cochannel Analog to Digital and Analog to Analog interference criteria as given in OET 69. The receiver antenna patterns used were as specified in OET 69 for Analog and Digital TV stations using UHF frequencies. The antenna was set at a height of 10 meters above ground level for the purposes of this study.

In accordance with table 5A of OET 69 and paragraph C (3) of FCC 98-24 Appendix E, Analog into Digital cochannel interference is predicted to occur as follows:

- |    |   |             |
|----|---|-------------|
| 1) | At edge of DTV Noise Limited Service Area | < 21 dB D/U |
| 2) | Areas where Signal/Noise is >25 dB        | < 2 dB D/U  |

In accordance with table 5A of OET 69 and part 74.705(d)(1), 74.706(d)(1) and 74.707(d)(1) of the Rules, Analog to Analog cochannel interference is predicted to occur as follows:

- |    |  |             |
|----|--|-------------|
| 1) | Areas inside Noise Limited Service Area (freq. offset) | < 28 dB D/U |
| 2) | Areas inside Noise Limited Service Area (no offset)    | < 45 dB D/U |

As can be seen in Figure 1 and Figure 2, all points within the noise limited service areas of the channel 16 LPTV, NTSC and DTV stations listed above exceed the Analog into Analog as well as Analog into Digital interference criteria defined above.

### **Interference to Adjacent Channel DTV, NTSC, and LPTV Stations**

OET 69 specifies that any adjacent channel DTV station within 50 km and NTSC, LPTV stations within 100 km of the herein-relocated LPTV station must be analyzed for potential interference. The Longley Rice terrain dependent propagation model is used to predict the interference within their noise limited service areas.

The following DTV stations within 50 km and the following NTSC or LPTV stations are within 100 km of the herein-relocated LPTV station:

<u>Chan</u>	<u>Offset</u>	<u>Call</u>	<u>Location</u>	<u>Service</u>	<u>Dist km</u>
15	pos	WANE-TV	Fort Wayne, IN	NTSC	96.5
17	none	W17AA	Celina, OH	LPTV	27.4

Pursuant to part 75.707, of the Commission's Rules and OET 69, the above listed LPTV station is less than 100 km from the herein-relocated LPTV station and was analyzed for potential interference from the herein-relocated station.

Pursuant to part 74.705 of the Commission's Rules and OET 69 the above listed NTSC station is less than 100 km from the herein-relocated LPTV station and was analyzed for potential interference from the herein-relocated station.

### **Interference Analysis Methodology**

The Desired to Undesired Interference studies shown in Figure 3 and Figure 4 were conducted from the herein-relocated station to the adjacent channel LPTV and NTSC allotments listed above. The subject analysis was conducted to determine if the noise limited service areas of the LPTV and NTSC study stations are susceptible to interference from the herein-relocated LPTV station. The study was conducted using the Longley Rice terrain dependent propagation model (version 1.2.2) as described in OET 69. Additional study parameters were derived using the planning factors and adjacent channel Analog to Digital and Analog to Analog interference criteria as given in OET 69. The receiver antenna patterns used were as specified in OET 69 for Analog and Digital TV stations using UHF frequencies. The antenna was set at a height of 10 meters above ground level for the purposes of this study.

In accordance with table 5A of OET 69 and part 74.705(d)(1), 74.706(d)(1) and 74.707(d)(1) of the Rules, Analog to Analog adjacent channel interference is predicted to occur as follows:

- 1) Areas inside Noise Limited Service Area < -3 dB D/U (lower adj.)
- 2) Areas inside Noise Limited Service Area < -13 dB D/U (upper adj.)

As can be seen in Figure 3 and Figure 4, all points within the noise limited service areas of the channel 15 NTSC station, and the channel 17 LPTV station listed above exceed the Analog into Analog interference criteria defined above.

**Additional Protection of NTSC Broadcast Stations:**

**Operation on a Channel 14 or 15 Channels Above a UHF Broadcast Station**

Pursuant to part 74.705 (b)(3) of the Commission's Rules, an LPTV construction permit application will not be accepted if it resides within the protected contour of any UHF Broadcast station and proposes operation on a channel 14 or 15 channels above the channel in use by the UHF Broadcast station.

No such stations were identified; therefore no interference analyses were conducted in this case.

**Operation from a Site less than 100 km from a UHF TV Broadcast Site**

Pursuant to part 74.705 (b)(4) of the Commission's Rules, an LPTV construction permit application will not be accepted if it specifies a site less than 100 km from the transmitter site of a UHF TV Broadcast station that operates on the seventh channel above the channel requested by the herein relocated LPTV station.

No such stations were identified; therefore no interference analyses were conducted in this case.

**Operation from a Site less than 32 km from a UHF Broadcast Station**

Pursuant to part 74.705 (b)(5) of the Commission's Rules, an LPTV application for change of channel and proposing a maximum effective radiated power of more than 50 kilowatts will not be accepted if it specifies a site less than 32 km from a transmitter site of a UHF Broadcast analog station operating on a channel which is the second, third, or fourth channel above or below the requested channel.

The herein-proposed applicant has concurrently filed a request for special displacement relief to part 74.705 (b)(5) of the Commission's Rules.

**Additional Protection of LPTV Stations:**

**Operation of LPTV Station 15 Channels above an Incumbent LPTV Station**

Pursuant to part 74.707 (b)(3) of the Commission's Rules, a UHF LPTV station construction permit application will not be accepted if it specifies a site within another UHF LPTV, TV translator, or TV booster station's protected contour and proposes operation on a channel that is 15 channels above the channel in use by the LPTV, TV translator, or TV booster station.

The following LPTV station has a protected contour, which encloses the proposed site of the herein-relocated LPTV station:

No such stations were identified; therefore no interference analyses were conducted in this case.

**Protection of Land Mobile Radio Stations:**

**Protection of Cochannel Land Mobile Stations**

Pursuant to part 74.709 (d)(2) of the Commission's Rules, a LPTV or TV translator station application will not be accepted if it specifies the same channel as one of the land mobile assignments and its field strength at the land mobile contour exceeds 52 dBu.

The following cochannel land mobile assignment was evaluated by calculating its protected contour distance along with the herein-relocated station's 52-dBu field strength distance:

Chan	Call Sign	Location	Protected Contour km	F. Strength Contour km	Required Dist km	Actual Distkm
16	LANDMB	Detroit, MI	130	3.1	133.1	211.8

As can be seen by the above contour distances, the herein-relocated station's 52 dBu field strength contour is 78.7 km short of overlapping the land mobile's protected contour.

**Protection of Adjacent Channel Land Mobile Stations**

Pursuant to part 74.709 (d)(3) of the Commission's Rules, a LPTV or TV translator station application will not be accepted if it specifies a channel that is one channel above or below one of the land mobile assignments and its field strength at the land mobile protected contour exceeds 76 dBu.

The following adjacent channel land mobile assignments were evaluated by calculating their protected contour distance along with the herein-relocated station's 76 dBu field strength distance:

Chan	Call Sign	Location	Protected Contour km	F. Strength Contour km	Required Dist km	Actual Dis.km
15	LANDMB	Cleveland, OH	130	3.1	133.1	231.8
15	LANDMB	Detroit, MI	130	3.1	133.1	211.8
15	LANDMB	Chicago, IL	130	3.4	133.4	318.9

As can be seen by the above contour distances, the herein-relocated station's 76 dBu field strength contour is at least 78.7 km short of overlapping any of the above listed land mobile's protected contour.

**STATEMENT OF ENGINEER**

This engineering statement was prepared by John P. Vanderploeg, who is a Consulting Engineer with the firm of Marconi Wireless, and whose credentials are a matter of record with the Commission. The information contained herein was prepared by him or under his direction and it is true and correct to the best of his knowledge.

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John P. Vanderploeg

Marconi Wireless

Date: September 06, 2002

\*\*\*\*\* TV CHANNEL INTERFERENCE STUDY \*\*\*\*\*

Job title:  
Proposed latitude: N 40 38 3.00  
Proposed longitude: W 84 12 29.00  
Proposed transmit antenna elevation(AMSL): 190.0 meters  
Proposed maximum ERP: 15.0000 kW  
Database file name: D:\Tv Database\Tv020629.edx  
Proposed offset: - offset  
Proposed zone: 0

Proposed channel: 16

CH	Call	Record	City	ST	Z	Status	Bear.	Dist.	Reqd. Dist.	Result
16-	W36AY	3847	ZANESVILLE	OH	0	LIC	111.1	205.5	140.4	65.1
Prop	F(50,10)	29 dBu	59.0 km + W36AY	F(50,50)	74	dBu	14.9 km =	73.9		
Prop	F(50,50)	74 dBu	3.9 km + W36AY	F(50,10)	29	dBu	136.5 km =	140.4		
16-	W36AY	3848	ZANESVILLE	OH	0	APP	111.1	205.5	164.7	40.8
Prop	F(50,10)	29 dBu	59.0 km + W36AY	F(50,50)	74	dBu	19.9 km =	78.9		
Prop	F(50,50)	74 dBu	3.9 km + W36AY	F(50,10)	29	dBu	160.8 km =	164.7		
16-	ALLOTM	4412	CHATHAM	ON	1		40.0	258.9	0.0	
16-		4413	CHATHAM	ON	1	APP	40.7	223.0	228.7	ACINF
Prop	F(50,10)	19 dBu	187.8 km +	F(50,50)	64	dBu	34.8 km =	222.6		
Prop	F(50,50)	74 dBu	8.7 km +	F(50,10)	29	dBu	220.0 km =	228.7		
16o	W62CR	4746	COLUMBUS	OH	0	APP	66.5	108.9	48.8	60.1
Prop	F(50,10)	46 dBu	45.2 km + W62CR	F(50,50)	74	dBu	3.6 km =	48.8		
Prop	F(50,50)	74 dBu	7.9 km + W62CR	F(50,10)	46	dBu	20.1 km =	28.1		
16+	WPTD	5135	DAYTON	OH	1	LIC	182.0	101.4	195.4	ACINF
Prop	F(50,10)	36 dBu	13.8 km + WPTD	F(50,50)	64	dBu	76.6 km =	90.4		
Prop	F(50,50)	74 dBu	0.0 km + WPTD	F(50,10)	46	dBu	195.4 km =	195.4		
16	WHMB-TV	6119	INDIANAPOLIS	IN	1	CP	244.8	188.8	245.6	ACINF
Prop	F(50,10)	20 dBu	95.2 km + WHMB-T	F(50,90)	41	dBu	83.6 km =	178.8		
Prop	F(50,50)	74 dBu	3.6 km + WHMB-T	F(50,10)	29	dBu	242.0 km =	245.6		
16	WHMB-TV	6156	INDIANAPOLIS	IN	0	CPOFF	244.7	188.7	164.4	24.3
Prop	F(50,10)	20 dBu	95.0 km + WHMB-T	F(50,90)	41	dBu	44.5 km =	139.4		
Prop	F(50,50)	74 dBu	3.6 km + WHMB-T	F(50,10)	29	dBu	160.8 km =	164.4		
16o	WNDU-TV	6174	SOUTH BEND	IN	1	LIC	303.4	200.0	230.3	ACINF
Prop	F(50,10)	36 dBu	91.2 km + WNDU-T	F(50,50)	64	dBu	84.0 km =	175.2		
Prop	F(50,50)	74 dBu	8.5 km + WNDU-T	F(50,10)	46	dBu	221.7 km =	230.3		

\*\*\*\*\* End of channel 16 study \*\*\*\*\*

**FIGURE 1**  
**COCHANNEL LPTV INTERFERENCE ANALYSIS**

\*\*\*\*\* TV CHANNEL INTERFERENCE STUDY \*\*\*\*\*

Job title:  
Proposed latitude: N 40 38 3.00  
Proposed longitude: W 84 12 29.00  
Proposed transmit antenna elevation(AMSL): 190.0 meters  
Proposed maximum ERP: 15.0000 kW  
Database file name: D:\Tv Database\Tv020629.edx  
Proposed offset: - offset  
Proposed zone: 0

Proposed channel: 16

CH	Call	Record	City	ST Z	Status	Bear.	Dist.	Reqd. Dist.	Result
16-	W36AY	3847	ZANESVILLE	OH 0	LIC	111.1	205.5	140.4	65.1
Prop	F(50,10)	29 dBu	59.0 km + W36AY	F(50,50)	74 dBu	14.9 km	=	73.9	
Prop	F(50,50)	74 dBu	3.9 km + W36AY	F(50,10)	29 dBu	136.5 km	=	140.4	
16-	W36AY	3848	ZANESVILLE	OH 0	APP	111.1	205.5	164.7	40.8
Prop	F(50,10)	29 dBu	59.0 km + W36AY	F(50,50)	74 dBu	19.9 km	=	78.9	
Prop	F(50,50)	74 dBu	3.9 km + W36AY	F(50,10)	29 dBu	160.8 km	=	164.7	
16-	ALLOTM	4412	CHATHAM	ON 1		40.0	258.9	0.0	
16-		4413	CHATHAM	ON 1	APP	40.7	223.0	228.7	ACINF
Prop	F(50,10)	19 dBu	187.8 km +	F(50,50)	64 dBu	34.8 km	=	222.6	
Prop	F(50,50)	74 dBu	8.7 km +	F(50,10)	29 dBu	220.0 km	=	228.7	
16o	W62CR	4746	COLUMBUS	OH 0	APP	66.5	108.9	48.8	60.1
Prop	F(50,10)	46 dBu	45.2 km + W62CR	F(50,50)	74 dBu	3.6 km	=	48.8	
Prop	F(50,50)	74 dBu	7.9 km + W62CR	F(50,10)	46 dBu	20.1 km	=	28.1	
16+	WPTD	5135	DAYTON	OH 1	LIC	182.0	101.4	195.4	ACINF
Prop	F(50,10)	36 dBu	13.8 km + WPTD	F(50,50)	64 dBu	76.6 km	=	90.4	
Prop	F(50,50)	74 dBu	0.0 km + WPTD	F(50,10)	46 dBu	195.4 km	=	195.4	
16	WHMB-TV	6119	INDIANAPOLIS	IN 1	CP	244.8	188.8	245.6	ACINF
Prop	F(50,10)	20 dBu	95.2 km + WHMB-T	F(50,90)	41 dBu	83.6 km	=	178.8	
Prop	F(50,50)	74 dBu	3.6 km + WHMB-T	F(50,10)	29 dBu	242.0 km	=	245.6	
16	WHMB-TV	6156	INDIANAPOLIS	IN 0	CPOFF	244.7	188.7	164.4	24.3
Prop	F(50,10)	20 dBu	95.0 km + WHMB-T	F(50,90)	41 dBu	44.5 km	=	139.4	
Prop	F(50,50)	74 dBu	3.6 km + WHMB-T	F(50,10)	29 dBu	160.8 km	=	164.4	
16o	WNDU-TV	6174	SOUTH BEND	IN 1	LIC	303.4	200.0	230.3	ACINF
Prop	F(50,10)	36 dBu	91.2 km + WNDU-T	F(50,50)	64 dBu	84.0 km	=	175.2	
Prop	F(50,50)	74 dBu	8.5 km + WNDU-T	F(50,10)	46 dBu	221.7 km	=	230.3	

\*\*\*\*\* End of channel 16 study \*\*\*\*\*

**FIGURE 2**  
**COCHANNEL NTSC INTERFERENCE ANALYSES**



\*\*\*\*\* TV CHANNEL INTERFERENCE STUDY \*\*\*\*\*

Job title:  
Proposed latitude: N 40 38 3.00  
Proposed longitude: W 84 12 29.00  
Proposed transmit antenna elevation(AMSL): 190.0 meters  
Proposed maximum ERP: 15.0000 kW  
Database file name: D:\Tv Database\Tv020629.edx  
Proposed offset: - offset  
Proposed zone: 0

Proposed channel: 16

CH	Call	Record	City	ST Z	Status	Bear.	Dist.	Reqd. Dist.	Result
17	W17AA	5198	CELINA	OH 0	LIC	250.6	27.4	14.1	13.2
Prop	F(50,10)	89 dBu	1.7 km + W17AA	F(50,50)	74 dBu	12.4 km =		14.1	
Prop	F(50,50)	74 dBu	4.0 km + W17AA	F(50,50)	89 dBu	5.2 km =		9.3	
15+	WANE-TV	5727	FORT WAYNE	IN 1	APP	302.3	96.5	65.9	30.6
Prop	F(50,10)	79 dBu	6.4 km + WANE-T	F(50,50)	64 dBu	59.5 km =		65.9	
Prop	F(50,50)	74 dBu	8.5 km + WANE-T	F(50,50)	89 dBu	24.6 km =		33.1	
15+	WANE-TV	5728	FORT WAYNE	IN 1	CP MOD	302.3	96.5	78.2	18.4
Prop	F(50,10)	79 dBu	6.4 km + WANE-T	F(50,50)	64 dBu	71.7 km =		78.2	
Prop	F(50,50)	74 dBu	8.5 km + WANE-T	F(50,50)	89 dBu	35.5 km =		44.0	

\*\*\*\*\* End of channel 16 study \*\*\*\*\*

**FIGURE 3**  
**ADJACENT CHANNEL LPTV INTERFERENCE ANALYSIS**

\*\*\*\*\* TV CHANNEL INTERFERENCE STUDY \*\*\*\*\*

Job title:  
 Proposed latitude: N 40 38 3.00  
 Proposed longitude: W 84 12 29.00  
 Proposed transmit antenna elevation(AMSL): 190.0 meters  
 Proposed maximum ERP: 15.0000 kW  
 Database file name: D:\Tv Database\Tv020629.edx  
 Proposed offset: - offset  
 Proposed zone: 0

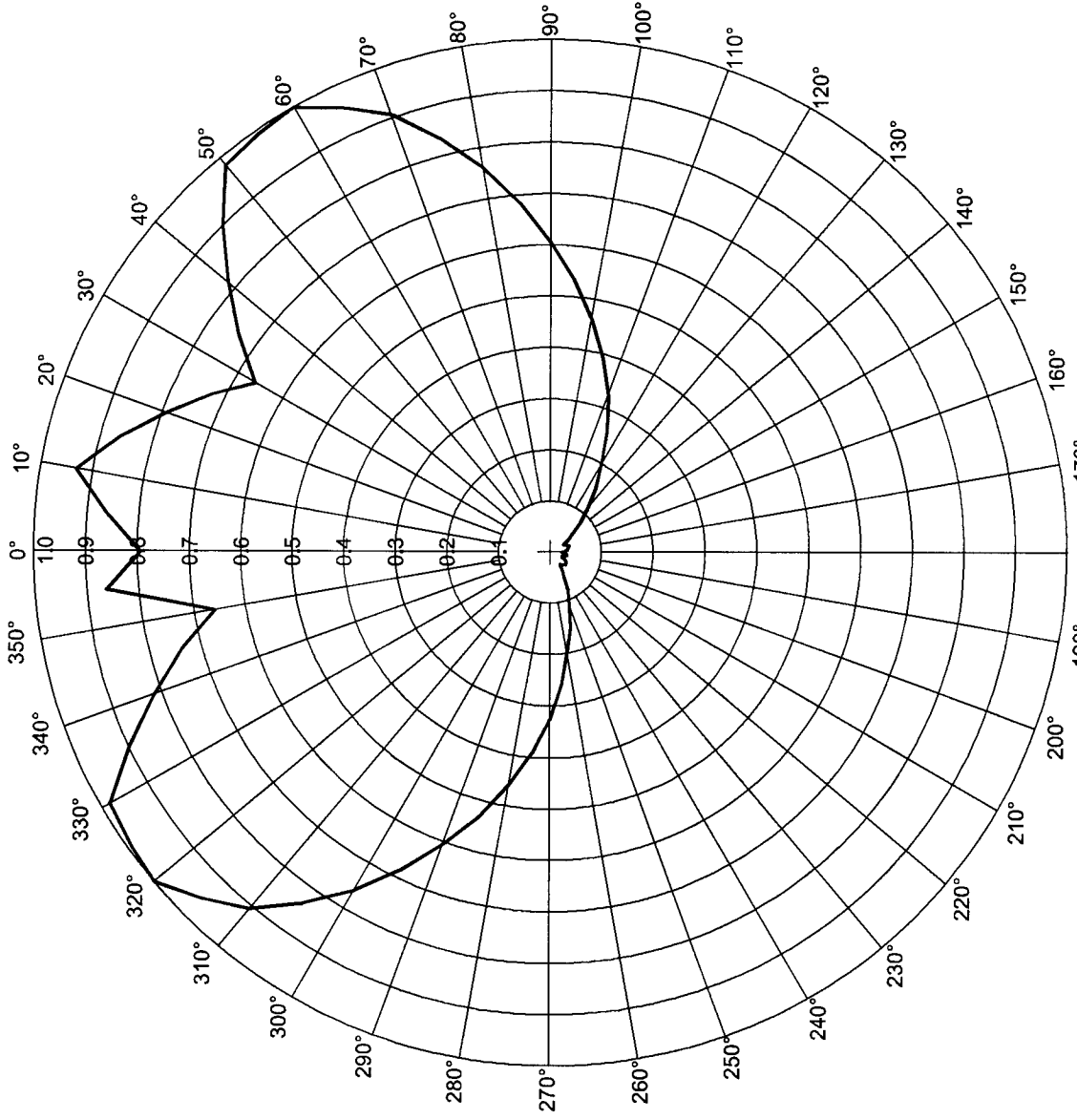
Proposed channel: 16

CH	Call	Record	City	ST	Z	Status	Bear.	Dist.	Reqd. Dist.	Result
17	W17AA	5198	CELINA	OH	0	LIC	250.6	27.4	14.1	13.2
	Prop F(50,10)	89 dBu	1.7 km + W17AA	F(50,50)	74	dBu	12.4 km =		14.1	
	Prop F(50,50)	74 dBu	4.0 km + W17AA	F(50,50)	89	dBu	5.2 km =		9.3	
15+	WANE-TV	5727	FORT WAYNE	IN	1	APP	302.3	96.5	65.9	30.6
	Prop F(50,10)	79 dBu	6.4 km + WANE-T	F(50,50)	64	dBu	59.5 km =		65.9	
	Prop F(50,50)	74 dBu	8.5 km + WANE-T	F(50,50)	89	dBu	24.6 km =		33.1	
15+	WANE-TV	5728	FORT WAYNE	IN	1	CP MOD	302.3	96.5	78.2	18.4
	Prop F(50,10)	79 dBu	6.4 km + WANE-T	F(50,50)	64	dBu	71.7 km =		78.2	
	Prop F(50,50)	74 dBu	8.5 km + WANE-T	F(50,50)	89	dBu	35.5 km =		44.0	

\*\*\*\*\* End of channel 16 study \*\*\*\*\*

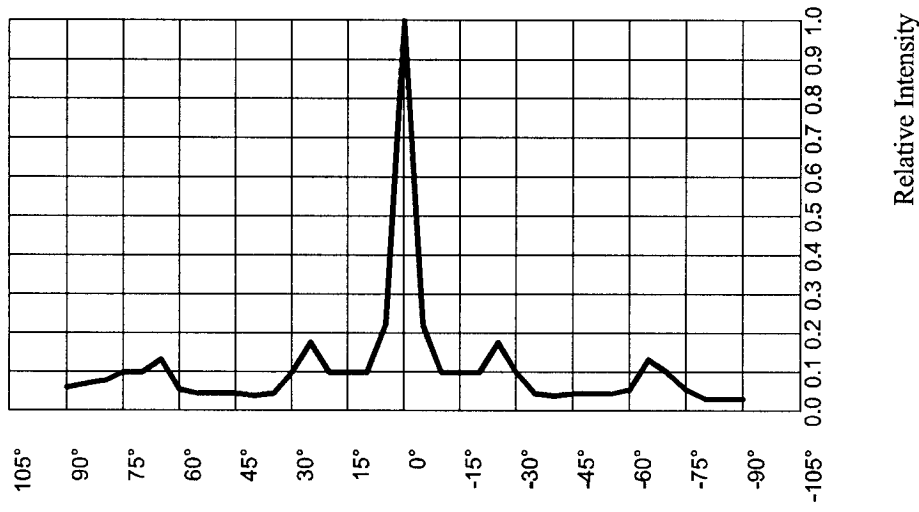
**FIGURE 4**  
**ADJACENT CHANNEL NTSC INTERFERENCE ANALYSIS**

HORIZONTAL PLANE PATTERN



VERTICAL PLANE PATTERN

Azimuth: 0.0°

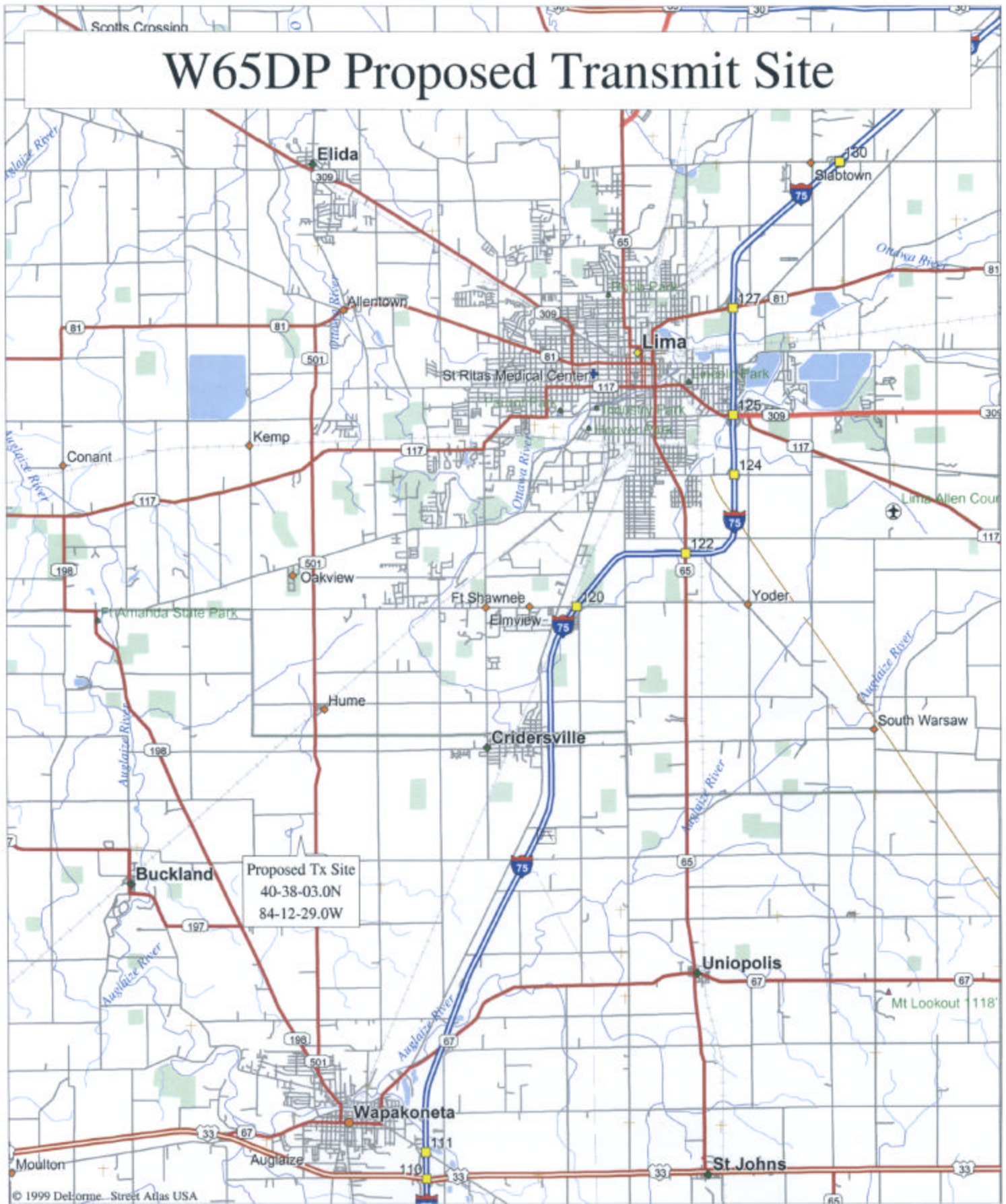


Relative Intensity

Pattern file: Scala\_6X2KBBU\_LPTV.pat

Relative Intensity

# W65DP Proposed Transmit Site



Mag 12.00  
Mon Aug 26 15:49 2002

Scale 1:125,000 (at center)

2 Miles

2 KM

Local Road  
Major Connector