

TECHNICAL EXHIBIT  
APPLICATION FOR MODIFICATION OF  
DTV CONSTRUCTION PERMIT  
FCC FILE NO. BPCDT-19991022AAU  
STATION WEYI-DT  
FACILITY ID 72052  
SAGINAW, MICHIGAN  
CH 30 193 KW 356 M

Technical Narrative

This Technical Exhibit supports a "checklist" application for modification of the construction permit for WEYI-DT at Saginaw, Michigan. Station WEYI-DT's DTV allotment specifies operation on channel 30 from the current site with a directional antenna maximum effective radiated power (ERP) of 193.3 kW and an antenna height above average terrain (HAAT) of 402 meters. In addition, WEYI-DT has an outstanding construction permit which specifies operation on channel 30 from the current site with a directional antenna maximum ERP of 203 kW and an HAAT of 248 meters (BPCDT-19991022AAU). The purpose of this modification application is to reduce the authorized ERP and HAAT and modify the antenna system.

Proposed Checklist Facilities

Station WEYI-DT proposes a "checklist" operation from the current WEYI-DT site (NAD27 coordinates: 43-13-01 N, 83-43-17 W) using a nondirectional antenna with a maximum ERP of 193 kW at an antenna HAAT of 356 meters. It is proposed to side-mount a Dielectric model TFU-16DSB-A (C) nondirectional antenna at the 355 meter level on the existing tower structure. Figure 1 provides the vertical plane relative field pattern data for the proposed antenna. The proposed antenna radiation center height above mean sea level is 565 meters (FCC tower registration no. 1010544).<sup>1</sup>

Station WEYI-DT's DTV allotment specifies operation on channel 30 from the current site with a directional antenna maximum effective radiated power (ERP) of 193.3 kW and an antenna height above average terrain (HAAT) of 402 meters. The proposed HAAT (356 meters) is more than 25 meters below

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<sup>1</sup>The FAA is being notified of a 11 meter reduction in the overall height of the existing tower. Upon receipt of an FAA Determination of No Hazard to Air Navigation, the tower registration data will be modified to reflect the reduced tower height.

the allotment HAAT (402 meters). Pursuant to Section 73.622(f)(3)(ii), for an HAAT that is more than 25 meters below the reference HAAT, an adjusted ERP can be specified that is up to the level permitted for operation with an HAAT that is 25 meters below the station's reference HAAT. The adjusted ERP is calculated in accordance with the formula contained in Section 73.622(f)(3)(i). The minimum reference ERP in any azimuthal direction for the WEYI-DT allotment is 181.5 kW.<sup>2</sup> Based on a reference ERP of 181.5 kW, the adjusted ERP is calculated to be 206 kW pursuant to Section 73.622(f)(3)(i). The proposed nondirectional ERP is 193 kW which is less than the adjusted ERP of 206 kW. Thus, the proposed facilities are considered to be "checklist".

#### Response to Paragraph 11 - NTSC/DTV Allocation Considerations

DTV "checklist" applications with an adjusted ERP calculated in accordance with 73.622(f)(3)(ii) do not require an interference showing.

#### Class A Allocation Considerations

A study has been conducted which indicates that the WEYI-DT proposal will not create prohibited interference to other existing, authorized or proposed Class A stations.

#### Response to Paragraph 12 - City Coverage

Figure 2 is a map showing the predicted 41 dBu and 48 dBu, F(50,90), coverage contours. The Saginaw city limits were derived from information contained in the 2000 U.S. Census for Michigan. As indicated, all of Saginaw is located within the proposed 48 dBu contour. The distances to the predicted contours were determined in accordance with the provisions of Section 73.625. The average elevations from 3.2 to 16.1 kilometers from the transmitter site, were obtained from the NGDC 30-second terrain database and were used for determining the distances to coverage contours.

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<sup>2</sup> The minimum WEYI-DT allotment ERP occurs at azimuths of 90, 100 and 110 degrees true where the relative field value for the WEYI-DT's allotted directional antenna is 0.969. Based on a relative field value of 0.969 and a maximum ERP of 193.3 kW, the resulting reference ERP is 181.5 kW.

#### US-Canadian LOU Compliance

The proposed transmitter site is located 107.9 kilometers from the closest point of the Canadian border. However, WEYI-DT's herein proposed "checklist" facilities (ERP 193 kW/HAAT 356 meters) are less than WEYI-DT's allotted facilities (ERP 193.3 kW/HAAT 402 meters) which have been approved by Canada. Therefore, it is not believed that the proposed facilities require coordination with Canada.

#### Objectionable Interference

There are no known authorized full service AM stations within 5 kilometers (3 miles) of the proposed transmitter site. Figure 3 provides a tabulation of all known authorized full service FM and TV stations within 16 kilometers (10 miles) of the proposed site. Although no adverse electromagnetic impact is expected, the applicant recognizes its responsibility to correct problems, which are a result of its proposed operation.

The existing site is more than 2166 kilometers from the closest point of the Mexican border. The closest FCC monitoring station is located at Allegan, MI more than 194 kilometers to the west-southwest. The closest point of the National Radio Quiet Zone (VA/WV) is more than 516 kilometers to the south-southeast. The closest point of the Table Mountain Radio Quiet Zone (CO) is more than 1812 kilometers to the west. The closest radio astronomy site operating on TV channel 37 is at Green Bank, WV, located more than 623 kilometers to the south-southeast. It is believed that these separations are sufficient to not be a concern for coordination purposes.

#### Response to Paragraph 13 - Environmental Protection Act

The proposed facilities were evaluated in terms of potential radio frequency (RF) energy exposure at ground level to workers and the general public. The radiation center for the proposed DTV STA antenna is located 355 meters above ground level with a maximum ERP of 193 kW. As shown on Sheet 2 of Figure 1, the vertical plane relative field values for

the proposed antenna do not exceed 0.15 towards the tower base (-60° to -90° elevation). Therefore, presuming a "worst case" vertical plane relative field value of 0.15 for angles towards the tower base, the calculated power density at a point 2 meters above ground level will be 0.0012 mW/cm<sup>2</sup>. This is less than 0.5% of the FCC's recommended limit of 0.38 mW/cm<sup>2</sup> for channel 30 for an "uncontrolled" environment. Therefore, based on the responsibility threshold of 5%, the proposal will comply with the RF emission rules.

Access to the transmitting site will be restricted and appropriately marked with warning signs. Furthermore, as this is a multi-user site, an agreement will be in effect with the other stations in the event that workers or other authorized personnel enter the restricted area or climb the tower to ensure that appropriate measures will be taken to assure worker safety with respect to radio frequency radiation exposure. Such measures include reducing the average exposure by spreading out the work over a longer period of time, wearing "accepted" RFR protective clothing or scheduling work when the stations are at reduced power or shut down.

If there are questions concerning the technical portion of this application, please contact the office of the undersigned.

W. Jeffrey Reynolds

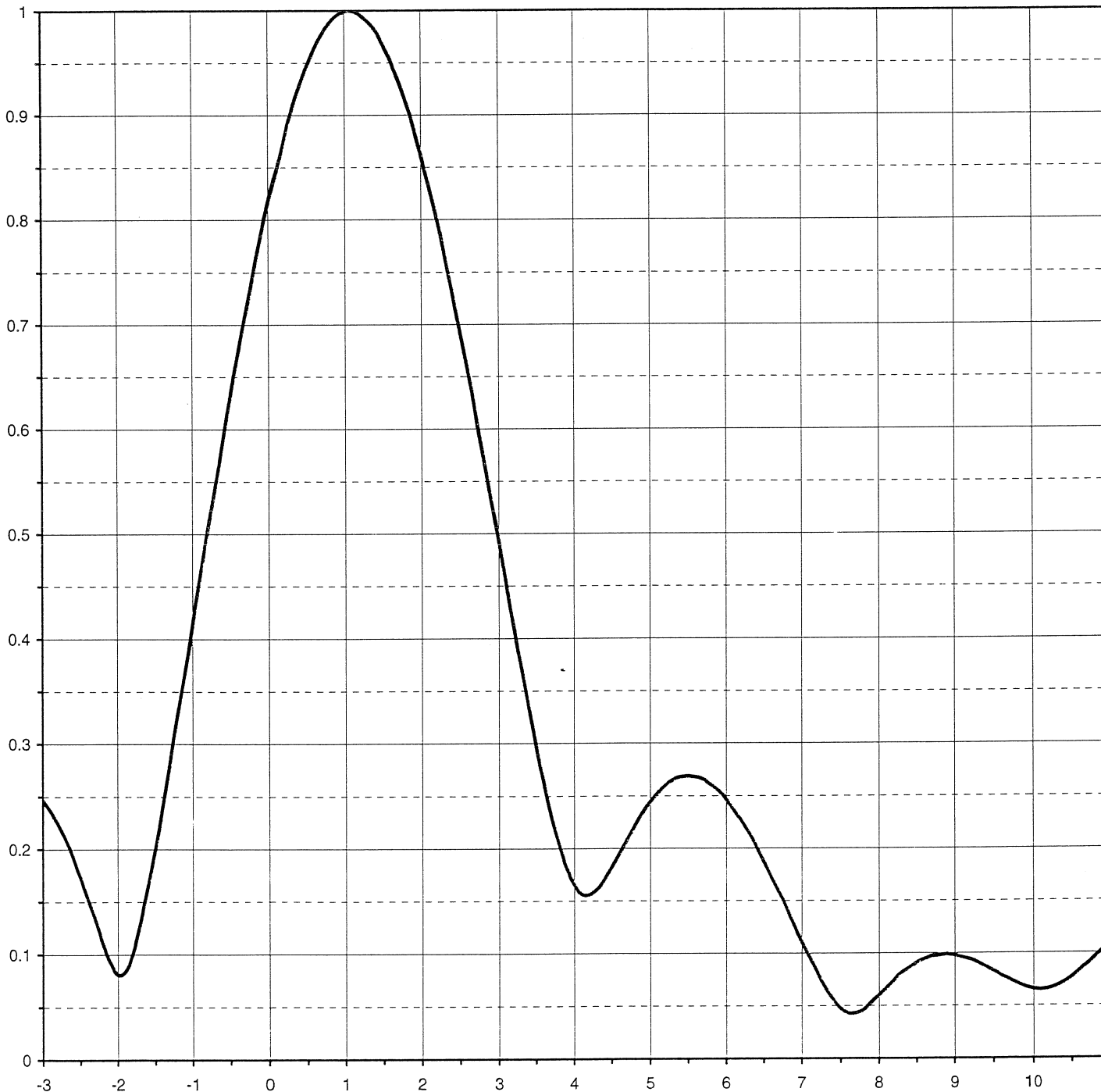
du Treil, Lundin & Rackley, Inc.  
201 Fletcher Avenue  
Sarasota, Florida 34237-6019  
(941) 329-6000  
JEFF@DLR.COM

May 27, 2003

Proposal Number	<b>DCA-9395</b>	Figure 1
Date	<b>22-May-01</b>	Sheet 1 of 3
Call Letters	<b>WEYI-DT</b>	Channel <b>30</b>
Location	<b>Saginaw, MI</b>	
Customer	<b>Sunrise Broadcasting</b>	
Antenna Type	<b>TFU-16DSB-A (C)</b>	

## ELEVATION PATTERN

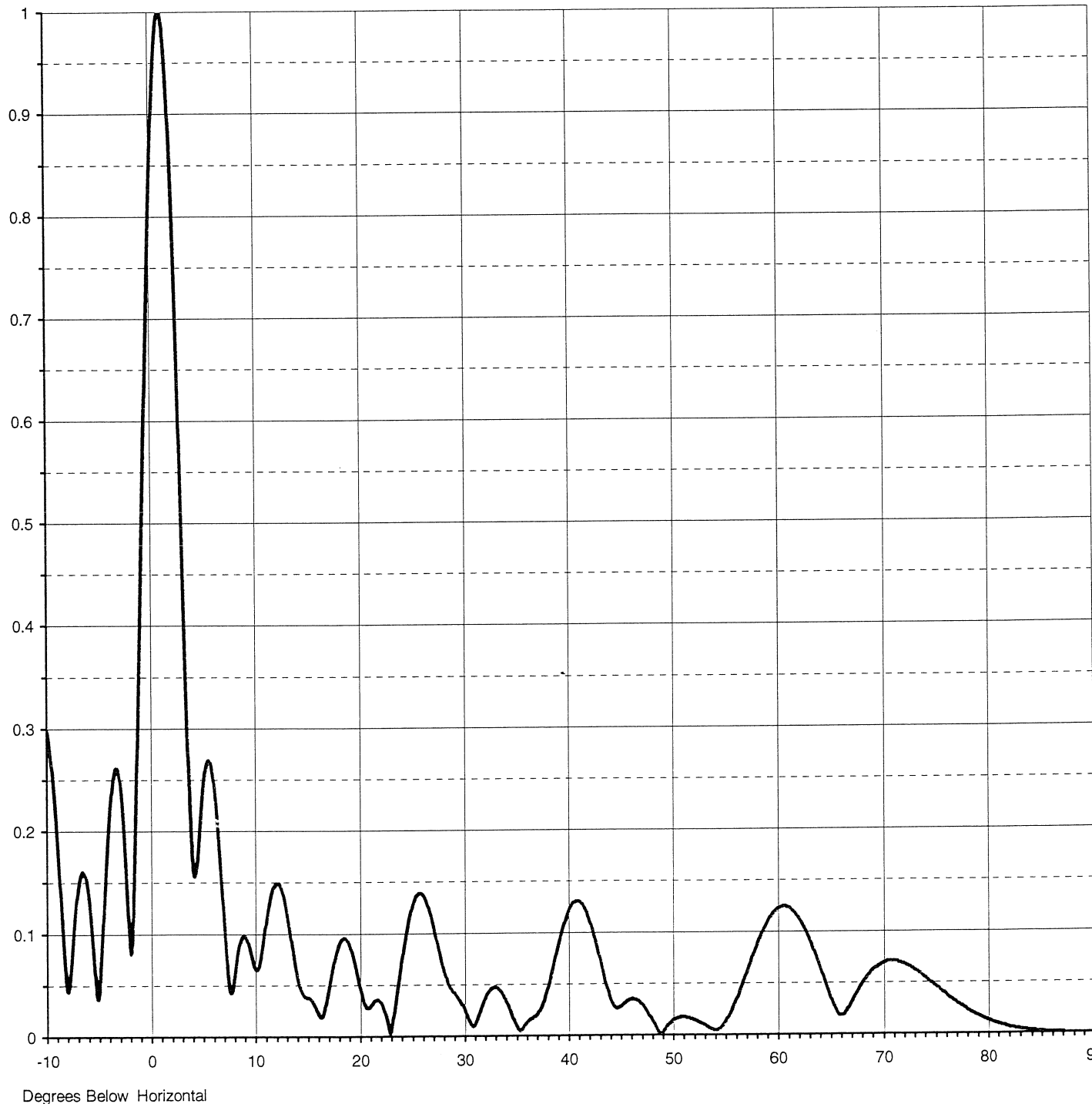
RMS Gain at Main Lobe	<b>16.00 ( 12.04 dB )</b>	Beam Tilt	<b>1.00 deg</b>
RMS Gain at Horizontal	<b>10.70 ( 10.29 dB )</b>	Frequency	<b>569.00 MHz</b>
Calculated / Measured	<b>Calculated</b>	Drawing #	<b>16B160100</b>



Degrees Below Horizontal

## ELEVATION PATTERN

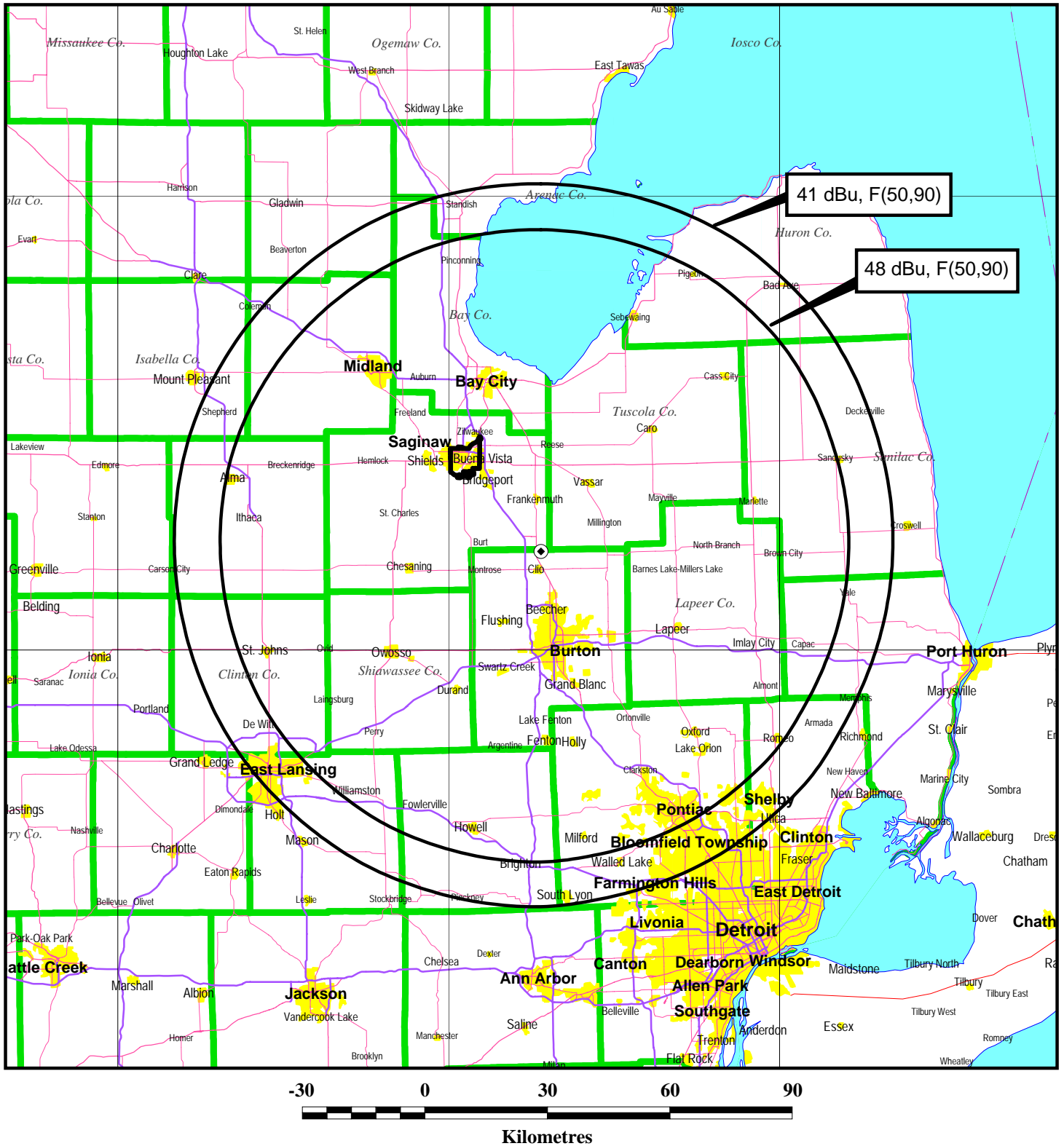
RMS Gain at Main Lobe	<b>16.00 ( 12.04 dB )</b>	Beam Tilt	<b>1.00 deg</b>
RMS Gain at Horizontal	<b>10.70 ( 10.29 dB )</b>	Frequency	<b>569.00 MHz</b>
Calculated / Measured	<b>Calculated</b>	Drawing #	<b>16B160100-90</b>



Proposal Number **DCA-9395**Date **22-May-01**Call Letters **WEYI-DT**Location **Saginaw, MI**Customer **Sunrise Broadcasting**Antenna Type **TFU-16DSB-A (C)**Figure 1  
Sheet 3 of 3Channel **30****TABULATION OF ELEVATION PATTERN**Elevation Pattern Drawing #: **16B160100-90**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.299	2.4	0.732	10.6	0.077	30.5	0.016	51.0	0.018	71.5	0.070
-9.5	0.259	2.6	0.656	10.8	0.089	31.0	0.010	51.5	0.017	72.0	0.068
-9.0	0.190	2.8	0.576	11.0	0.103	31.5	0.022	52.0	0.015	72.5	0.066
-8.5	0.105	3.0	0.494	11.5	0.133	32.0	0.035	52.5	0.013	73.0	0.062
-8.0	0.044	3.2	0.412	12.0	0.149	32.5	0.044	53.0	0.010	73.5	0.059
-7.5	0.094	3.4	0.334	12.5	0.145	33.0	0.048	53.5	0.007	74.0	0.055
-7.0	0.145	3.6	0.263	13.0	0.124	33.5	0.044	54.0	0.005	74.5	0.050
-6.5	0.160	3.8	0.204	13.5	0.093	34.0	0.036	54.5	0.006	75.0	0.046
-6.0	0.134	4.0	0.166	14.0	0.062	34.5	0.024	55.0	0.012	75.5	0.042
-5.5	0.072	4.2	0.156	14.5	0.043	35.0	0.011	55.5	0.021	76.0	0.038
-5.0	0.047	4.4	0.170	15.0	0.038	35.5	0.006	56.0	0.032	76.5	0.034
-4.5	0.135	4.6	0.195	15.5	0.035	36.0	0.012	56.5	0.045	77.0	0.030
-4.0	0.216	4.8	0.222	16.0	0.024	36.5	0.017	57.0	0.058	77.5	0.027
-3.5	0.259	5.0	0.244	16.5	0.020	37.0	0.020	57.5	0.072	78.0	0.023
-3.0	0.247	5.2	0.260	17.0	0.042	37.5	0.028	58.0	0.085	78.5	0.020
-2.8	0.225	5.4	0.268	17.5	0.068	38.0	0.043	58.5	0.098	79.0	0.018
-2.6	0.193	5.6	0.268	18.0	0.088	38.5	0.063	59.0	0.108	79.5	0.015
-2.4	0.153	5.8	0.261	18.5	0.096	39.0	0.084	59.5	0.117	80.0	0.013
-2.2	0.110	6.0	0.247	19.0	0.091	39.5	0.103	60.0	0.122	80.5	0.011
-2.0	0.081	6.2	0.227	19.5	0.074	40.0	0.119	60.5	0.125	81.0	0.009
-1.8	0.101	6.4	0.202	20.0	0.052	40.5	0.129	61.0	0.124	81.5	0.008
-1.6	0.163	6.6	0.173	20.5	0.032	41.0	0.131	61.5	0.120	82.0	0.006
-1.4	0.240	6.8	0.143	21.0	0.028	41.5	0.126	62.0	0.114	82.5	0.005
-1.2	0.325	7.0	0.111	21.5	0.035	42.0	0.114	62.5	0.105	83.0	0.004
-1.0	0.412	7.2	0.082	22.0	0.034	42.5	0.097	63.0	0.094	83.5	0.004
-0.8	0.501	7.4	0.057	22.5	0.022	43.0	0.077	63.5	0.081	84.0	0.003
-0.6	0.588	7.6	0.043	23.0	0.003	43.5	0.056	64.0	0.067	84.5	0.002
-0.4	0.670	7.8	0.046	23.5	0.034	44.0	0.038	64.5	0.049	85.0	0.002
-0.2	0.747	8.0	0.060	24.0	0.068	44.5	0.028	65.0	0.035	85.5	0.001
0.0	0.817	8.2	0.074	24.5	0.100	45.0	0.028	65.5	0.024	86.0	0.001
0.2	0.877	8.4	0.086	25.0	0.124	45.5	0.032	66.0	0.019	86.5	0.001
0.4	0.926	8.6	0.094	25.5	0.137	46.0	0.035	66.5	0.023	87.0	0.001
0.6	0.963	8.8	0.098	26.0	0.138	46.5	0.035	67.0	0.032	87.5	0.000
0.8	0.988	9.0	0.098	26.5	0.128	47.0	0.031	67.5	0.041	88.0	0.000
1.0	0.999	9.2	0.094	27.0	0.110	47.5	0.024	68.0	0.050	88.5	0.000
1.2	0.997	9.4	0.087	27.5	0.087	48.0	0.016	68.5	0.057	89.0	0.000
1.4	0.982	9.6	0.079	28.0	0.067	48.5	0.007	69.0	0.063	89.5	0.000
1.6	0.954	9.8	0.075	28.5	0.051	49.0	0.002	69.5	0.067	90.0	0.000
1.8	0.913	10.0	0.068	29.0	0.043	49.5	0.009	70.0	0.070		
2.0	0.862	10.2	0.065	29.5	0.036	50.0	0.014	70.5	0.071		
2.2	0.801	10.4	0.068	30.0	0.028	50.5	0.017	71.0	0.071		

Figure 2



## PREDICTED COVERAGE CONTOURS

STATION WEYI-DT  
SAGINAW, MICHIGAN  
CH 30 193 KW 356 M

du Treil, Lundin & Rackley, Inc. Sarasota, Florida



**du Treil, Lundin, and Rackley****Figure 3, Sheet 1 of 2****Proposed WEYI-DT Ch 30, Saginaw, MI****Coordinates: 431301****834317****Frequency Range: -****Range: 16**

Date: 5/27/2003

**CDBS FM Inquiry List**

Page: 1

<b>Rec Type</b>	<b>Fac Id</b>	<b>Call</b>	<b>Status</b>	<b>Chan</b>	<b>Svc Class</b>	<b>Class</b>	<b>City</b>	<b>St</b>	<b>DA</b>	<b>Latitude</b>	<b>Longitude</b>	<b>ERP (kW)</b>	<b>HAAT (m)</b>	<b>RCAMSL (m)</b>	<b>Bear</b>	<b>Dist. (km)</b>
C	121985	None	APP	204	FM	A	TAYMOUTH	MI	N	43-15-25	083-47-05	0.250	0.0	0.0	310.9	6.8
A	88040	WTAC	CP	209	FM	A	BURTON	MI	N	43-05-07	083-40-19	1.000			164.7	15.2
C	88040	WTAC	LIC	209	FM	A	BURTON	MI	N	43-05-07	083-40-19	1.000			164.7	15.2
A	21730	WFBE	CP	236	FM	B	FLINT	MI	D	43-12-00	083-33-30	50.000	150.0	385.0	98.1	13.4
A	20448	WWBN	CP	268	FM	A	TUSCOLA	MI	N	43-12-00	083-33-30	1.800	149.0	384.0	98.1	13.4
C	20448	WWBN	LIC	268	FM	A	TUSCOLA	MI	N	43-12-00	083-33-30	1.800	149.0	384.0	98.1	13.4

**du Treil, Lundin, and Rackley****Figure 3, Sheet 2 of 2****Proposed WEYI-DT Ch. 30 Saginaw, MI****Coordinates: 431301 834317****Channel Range: 2-69****Range: 16**

Date: 5/27/2003

**CDBS Tv Inquiry List**

Page: 1

<b>Rec Type</b>	<b>Facility Id</b>	<b>Call</b>	<b>Status</b>	<b>Chan</b>	<b>Svc Class</b>	<b>Class</b>	<b>City</b>	<b>St</b>	<b>DA</b>	<b>Latitude</b>	<b>Longitude</b>	<b>ERP (kW)</b>	<b>HAAT (m)</b>	<b>RCAMSL (m)</b>	<b>Bearing</b>	<b>Dist. (km)</b>
C	72052	WEYI-T	CP	30	DT		SAGINAW	MI	D	43-13-01	083-43-17	203.000	248	460	0	0
C	72052	WEYI-T	LIC	25	TV		SAGINAW	MI	N	43-13-01	083-43-17	2040.00	402	611	0	0
C	15456	W09CK	CP	9	TX		FLINT	MI	D	43-07-09	083-40-38	0.085		253	161.7	11.44
C	16652	W54DA	LIC	54	TX		FLINT	MI	D	43-07-09	083-40-38	0.100		254	161.7	11.44
C	64181	W52CU	CP	32	TX		FLINT	MI	D	43-12-00	083-33-30	15.000		390	98.05	13.38