

TECHNICAL EXHIBIT
APPLICATION FOR MODIFICATION OF
DTV CONSTRUCTION PERMIT
DTV STATION WIRS-DT
FACILITY ID: 39887
YAUCO, PUERTO RICO

April 30, 2004

CH 41 185 KW 832 M

TECHNICAL EXHIBIT
APPLICATION FOR MODIFICATION OF
DTV CONSTRUCTION PERMIT
DTV STATION WIRS-DT
FACILITY ID: 39887
YAUCO, PUERTO RICO

Table of Contents

Technical Narrative

Figure 1	Antenna Data
Figure 2	Predicted Coverage Contours
Figure 3	DTV/TV Separation Study

TECHNICAL EXHIBIT
APPLICATION FOR MODIFICATION OF
DTV CONSTRUCTION PERMIT
STATION WIRS-DT
FACILITY ID: 39887
YAUCO, PUERTO RICO
CH 41 185 KW 832 M

Technical Narrative

This Technical Exhibit supports an application for modification of DTV construction permit (BPCDT-19991101AJK) for the digital operation of station WIRS-DT at Yauco, Puerto Rico. Station WIRS-DT is currently authorized by construction permit (CP) to operate on channel 41 (632-638 MHz) with a maximum directional antenna effective radiated power (ERP) of 50 kilowatts (kW) and an antenna height above average terrain (HAAT) of 828 meters. This application proposes to modify the WIRS-DT authorized construction permit by changing the antenna system from directional to non-directional, increasing the proposed ERP, and slightly increasing the HAAT. It is noted that the antenna radiation center above ground level will not change, however the HAAT is being corrected to 832 meters. No other changes are proposed.

Station WIRS-DT proposes to operate on DTV channel 41 from its currently authorized construction permit site, N 18° 10' 10" W 66° 34' 36". Specifically, it is proposed to increase the maximum ERP to 185 kW and to side mount a non-directional antenna on an existing 51 meter tower. The structure does not require notice to the FAA and obstruction marking and lighting are not necessary. The structure also passes the slope test of the FCC's TOWAIR program. Therefore, the structure does not require registration with the FCC.

Figure 1 provides the horizontal and vertical antenna data for the Dielectric TFU-24DSB-A DC non-directional antenna.

There are no known authorized full service AM stations within 5 kilometers (3 miles) of the WIRS-DT transmitter site. The following is a list of authorized full service FM and TV stations within 16 kilometers (10 miles) of the proposed DTV site.

<u>Station</u>	<u>Channel</u>	<u>Bearing(°True)</u>	<u>Distance(km)</u>
WPUC-FM, Ponce, PR	205B	288	1.70
WZAR, Ponce, PR	270B	126	2.90
WNRT, Manati, PR	245B	22	10.90
WIRS, Ponce, PR	42	0	0.00
WSUR-DT, Ponce, PR	43	0	0.03
WSUR-TV, Ponce, PR	9	0	0.03
WTIN-DT, Ponce, PR	15	298	0.07
WTIN, Ponce, PR	14	298	0.07
WMEI, Arecibo, PR	60	100	0.18
WSTE-DT, Ponce, PR	66	125	2.86
WSTE, Ponce, PR	7	125	2.86

Although no adverse electromagnetic impact is expected, the applicant recognizes its responsibility to correct problems, which are a result of its proposed DTV operation.

The proposed transmitter site is more than 2800 kilometers from the Canadian border. The proposed transmitter site is more than 2100 kilometers from the US/Mexican border area. The closest FCC monitoring station is at Santa Isabel, Puerto Rico, located 28 kilometers to the southeast. The proposed DTV site is outside the National Radio Quiet Zone (VA/WVA), the closest point being more than 2400 kilometers to the northwest. The closest point of the Table Mountain Radio Quiet Zone (CO) is more than 4000 kilometers to the northwest. The closest radio

astronomy site operating on TV channel 37 is at Arecibo, Puerto Rico, located approximately 27 kilometers to the northwest. These separations are sufficient to not be a concern for coordination purposes, except with respect to the FCC monitoring station at Santa Isabel and the radio astronomy site at Arecibo. Therefore, both facilities will be notified of the proposal.

Figure 2 is a map showing the DTV predicted coverage contours. The map provides the predicted 41 dBu f(50,90) noise-limited contour and 48 dBu f(50,90) city grade contour. The extent of the contours has been calculated using the normal FCC prediction method, except the proposed HAAT was calculated based on 36 evenly spaced radials and the NGDC 3-second terrain database. The Yauco city limits were derived from information contained in the 2000 U.S. Census for Puerto Rico. As shown, the 48 dBu contour encompasses the entire city limits of Yauco.

Figure 3 is a DTV channel 41 separation study toward other NTSC and DTV allotments based on a 50 kilometer "buffer". Although the separation requirements are only applicable to new DTV allotments, they can be used as an indication of which stations have the potential of receiving interference from the proposed channel 41 DTV operation.

An interference analysis has been conducted using the procedures outlined in the FCC's OET-69 bulletin, which demonstrates that the proposal complies with the

interference protection provisions of Section 73.623(c)(2).¹
Interference calculations for the proposed WIRS-DT
operation are summarized below with respect to all
authorized NTSC, DTV, and Class A facilities.

Protected NTSC/DTV Station	FCC Service Population	Proposed <i>Unique</i> Interference Population*
WQTO NTSC Ch. 26 Ponce, PR Authorized CP Licensed	1,240,624 1,003,697	1,216 (0.10%) 489 (0.05%)
WQQZ-LP LPTV Ch. 33 Ponce, PR Licensed	--	0 (0.00%)
WRUA NTSC Ch. 34 Fajardo, PR Licensed	--	0 (0.00%)
WJWN-TV NTSC Ch. 38 San Sebastian, PR Licensed	--	0 (0.00%)
WMTJ NTSC Ch. 40 Fajardo, PR Licensed	2,739,220	8,560 (0.31%)
WIRS NTSC Ch. 42 Yauco, PR Licensed	--	0 (0.00%)
WVEO NTSC Ch. 44 Aguadilla, PR Licensed	--	0 (0.00%)
WVOZ-TV NTSC Ch. 48 Ponce, PR Licensed	791,769	222 (0.03%)
WQSJ-LP LPTV Ch. 48 Quebradillas, PR Licensed	--	0 (0.00%)

¹ The du Treil, Lundin & Rackley, Inc. DTV interference analysis program is based on the program and procedures outlined by the FCC in the Sixth Report and Order; subsequent Memorandum Opinion and Order; and FCC OET Bulletin No. 69. A nominal grid size resolution of 2 km was employed. An Alpha based processor computer system was employed. The results have been found to be in very close agreement with the results of the FCC implementation of OET Bulletin No. 69.

The study above indicates that the WIRS-DT operation does not cause any prohibited contour overlap to any Class A stations. It is also apparent that the proposed WIRS-DT operation on channel 41 complies with the FCC's interference standards towards all authorized NTSC and DTV assignments.

The proposed facility has been evaluated in terms of potential radiofrequency electromagnetic field exposure at ground level in accordance with OET Bulletin No. 65, Evaluating Compliance with FCC Specified Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields². The power density at the base of the tower was calculated using the appropriate procedures contained in the Bulletin.

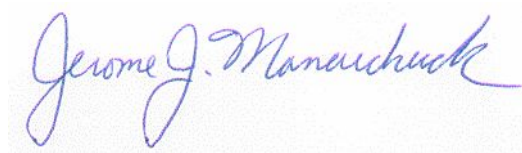
The proposed WIRS-DT antenna will be side mounted on an existing tower. The antenna center of radiation is located 38.4 meters above ground level. The calculated power density at 2 meters above ground level (AGL) was calculated using the appropriate equation contained in the Bulletin. The vertical relative field pattern and tabulation for the proposed antenna are shown in Figure 1. The maximum vertical relative field value towards the tower base (-60 to -90 elevation) is less than 0.12. Therefore, using a "worst-case" vertical relative field value of 0.12, the calculated power density at 2 meters above the ground is 0.0672 milliwatts per square centimeter (mW/cm^2), which is 16% of the Commission's recommended limit of $0.42 \text{ mW}/\text{cm}^2$ for channel 41 for an "uncontrolled" environment. If necessary, measurements will be taken to show compliance with the FCC's RF emission rules.

² OET Bulletin 65, Second Edition 97-01, August, 1997.

Access to the transmitting site will be restricted and appropriately marked with warning signs. Furthermore, in the event that workers or other authorized personal enter the restricted area or climb the tower, 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 and/or RFR exposure monitors or scheduling work when the stations are at reduced power or shut down.

It is noted that this technical exhibit only addresses the potential for radiofrequency electromagnetic field exposure. All other aspects of the environmental processing analysis will be provided to the FCC by the tower owner as part of the tower registration process.

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



Jerome J. Manarchuck

du Treil, Lundin & Rackley, Inc.
201 Fletcher Ave.
Sarasota, Florida 34237

April 30, 2004



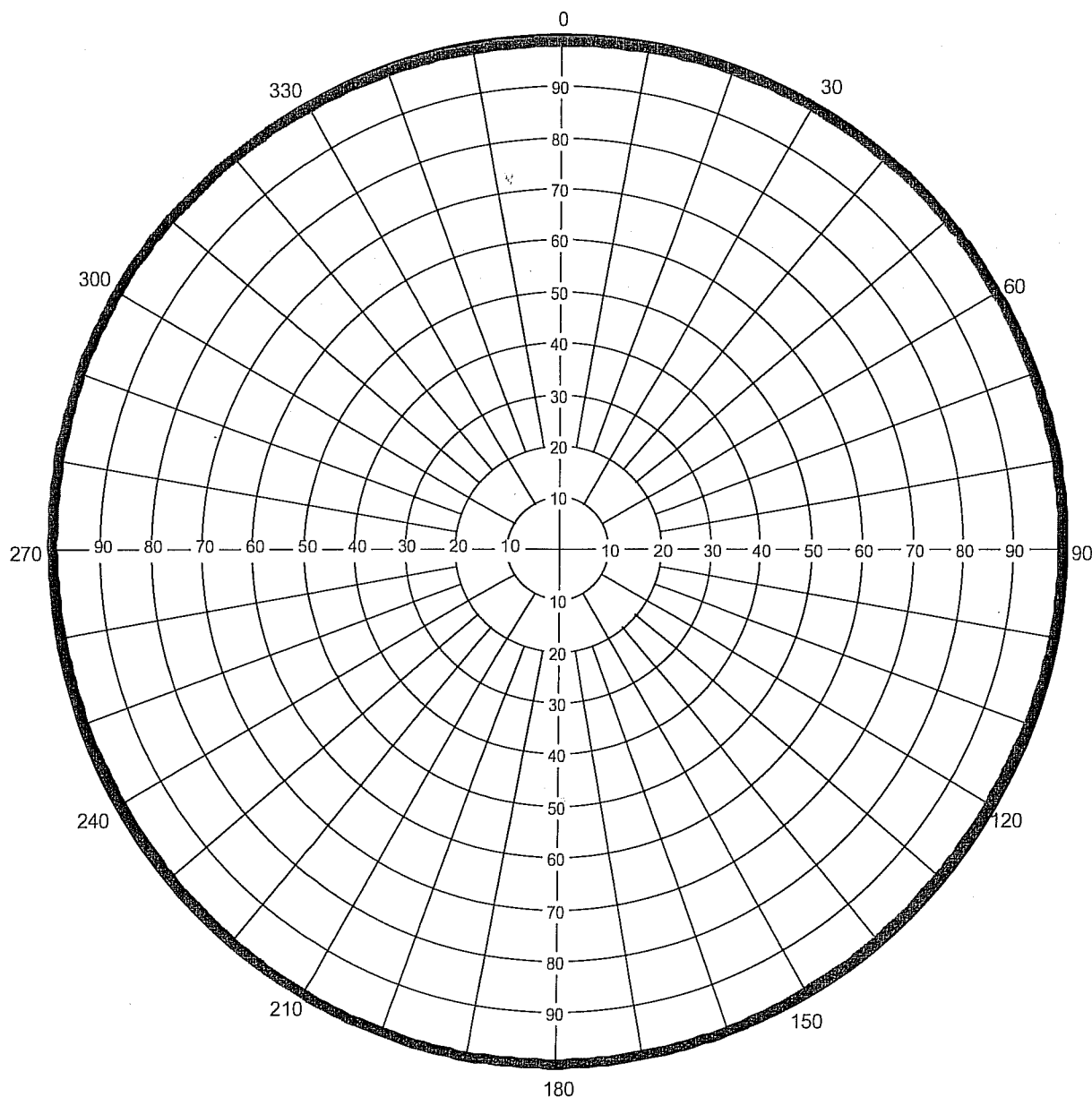
Proposal Number		Revision	
Date	22 Mar 2004		
Call Letters	WIRS	Channel	41
Location	Yauco, PR		
Customer			
Antenna Type	TFU-24DSB-A DC		

AZIMUTH PATTERN

Gain
Calculated / Measured

1.00 (0.00 dB)
Calculated

Frequency 635 MHz
Drawing # DSB-A



Remarks:



Proposal Number
 Date **22 Mar 2004**
 Call Letters **WIRS**
 Location **Yauco, PR**
 Customer
 Antenna Type **TFU-24DSB-A DC**

Revision
 Channel **41**

TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing # **DSB-A**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.987	45	0.995	90	0.996	135	0.990	180	0.999	225	0.992	270	0.995	315	0.996
1	0.988	46	0.995	91	0.996	136	0.990	181	0.999	226	0.991	271	0.995	316	0.996
2	0.988	47	0.995	92	0.995	137	0.990	182	1.000	227	0.991	272	0.995	317	0.995
3	0.988	48	0.995	93	0.995	138	0.990	183	1.000	228	0.991	273	0.996	318	0.995
4	0.988	49	0.995	94	0.995	139	0.990	184	1.000	229	0.991	274	0.996	319	0.995
5	0.988	50	0.995	95	0.995	140	0.990	185	1.000	230	0.991	275	0.996	320	0.994
6	0.989	51	0.995	96	0.995	141	0.990	186	0.999	231	0.991	276	0.996	321	0.994
7	0.989	52	0.995	97	0.995	142	0.991	187	0.999	232	0.991	277	0.997	322	0.993
8	0.989	53	0.995	98	0.994	143	0.991	188	0.999	233	0.990	278	0.997	323	0.993
9	0.989	54	0.995	99	0.994	144	0.991	189	0.999	234	0.990	279	0.997	324	0.993
10	0.989	55	0.995	100	0.994	145	0.991	190	0.999	235	0.990	280	0.998	325	0.992
11	0.990	56	0.995	101	0.994	146	0.991	191	0.999	236	0.990	281	0.998	326	0.992
12	0.990	57	0.995	102	0.994	147	0.992	192	0.999	237	0.990	282	0.998	327	0.992
13	0.990	58	0.995	103	0.993	148	0.992	193	0.999	238	0.990	283	0.998	328	0.992
14	0.990	59	0.996	104	0.993	149	0.992	194	0.999	239	0.990	284	0.999	329	0.991
15	0.990	60	0.996	105	0.993	150	0.992	195	0.998	240	0.990	285	0.999	330	0.991
16	0.990	61	0.996	106	0.993	151	0.993	196	0.998	241	0.990	286	0.999	331	0.991
17	0.991	62	0.996	107	0.993	152	0.993	197	0.998	242	0.990	287	0.999	332	0.990
18	0.991	63	0.996	108	0.992	153	0.993	198	0.998	243	0.990	288	0.999	333	0.990
19	0.991	64	0.996	109	0.992	154	0.993	199	0.998	244	0.990	289	0.999	334	0.990
20	0.991	65	0.996	110	0.992	155	0.994	200	0.997	245	0.990	290	1.000	335	0.990
21	0.991	66	0.996	111	0.992	156	0.994	201	0.997	246	0.990	291	1.000	336	0.990
22	0.992	67	0.996	112	0.991	157	0.994	202	0.997	247	0.990	292	1.000	337	0.989
23	0.992	68	0.996	113	0.991	158	0.995	203	0.997	248	0.990	293	1.000	338	0.989
24	0.992	69	0.996	114	0.991	159	0.995	204	0.996	249	0.990	294	1.000	339	0.989
25	0.992	70	0.996	115	0.991	160	0.995	205	0.996	250	0.990	295	1.000	340	0.989
26	0.992	71	0.996	116	0.991	161	0.995	206	0.996	251	0.991	296	1.000	341	0.989
27	0.992	72	0.996	117	0.991	162	0.996	207	0.996	252	0.991	297	1.000	342	0.989
28	0.993	73	0.996	118	0.990	163	0.996	208	0.996	253	0.991	298	1.000	343	0.988
29	0.993	74	0.996	119	0.990	164	0.996	209	0.995	254	0.991	299	1.000	344	0.988
30	0.993	75	0.996	120	0.990	165	0.997	210	0.995	255	0.991	300	1.000	345	0.988
31	0.993	76	0.996	121	0.990	166	0.997	211	0.995	256	0.991	301	1.000	346	0.988
32	0.993	77	0.996	122	0.990	167	0.997	212	0.995	257	0.992	302	1.000	347	0.988
33	0.993	78	0.996	123	0.990	168	0.997	213	0.994	258	0.992	303	0.999	348	0.988
34	0.993	79	0.996	124	0.990	169	0.998	214	0.994	259	0.992	304	0.999	349	0.988
35	0.994	80	0.996	125	0.990	170	0.998	215	0.994	260	0.992	305	0.999	350	0.988
36	0.994	81	0.996	126	0.989	171	0.998	216	0.994	261	0.992	306	0.999	351	0.988
37	0.994	82	0.996	127	0.989	172	0.998	217	0.993	262	0.993	307	0.998	352	0.988
38	0.994	83	0.996	128	0.989	173	0.998	218	0.993	263	0.993	308	0.998	353	0.988
39	0.994	84	0.996	129	0.989	174	0.999	219	0.993	264	0.993	309	0.998	354	0.988
40	0.994	85	0.996	130	0.989	175	0.999	220	0.993	265	0.993	310	0.998	355	0.988
41	0.994	86	0.996	131	0.989	176	0.999	221	0.992	266	0.994	311	0.997	356	0.988
42	0.994	87	0.996	132	0.989	177	0.999	222	0.992	267	0.994	312	0.997	357	0.988
43	0.994	88	0.996	133	0.990	178	0.999	223	0.992	268	0.994	313	0.997	358	0.988
44	0.994	89	0.996	134	0.990	179	0.999	224	0.992	269	0.995	314	0.996	359	0.988

Remarks:



Proposal Number

Date **22-Mar-04**

Call Letters

WIRS-DT

Channel **41**

Location

Yauco, PR

Customer

Antenna Type

TFU-24DSB-A DC

ELEVATION PATTERN

RMS Gain at Main Lobe **23.00 (13.62 dB)**

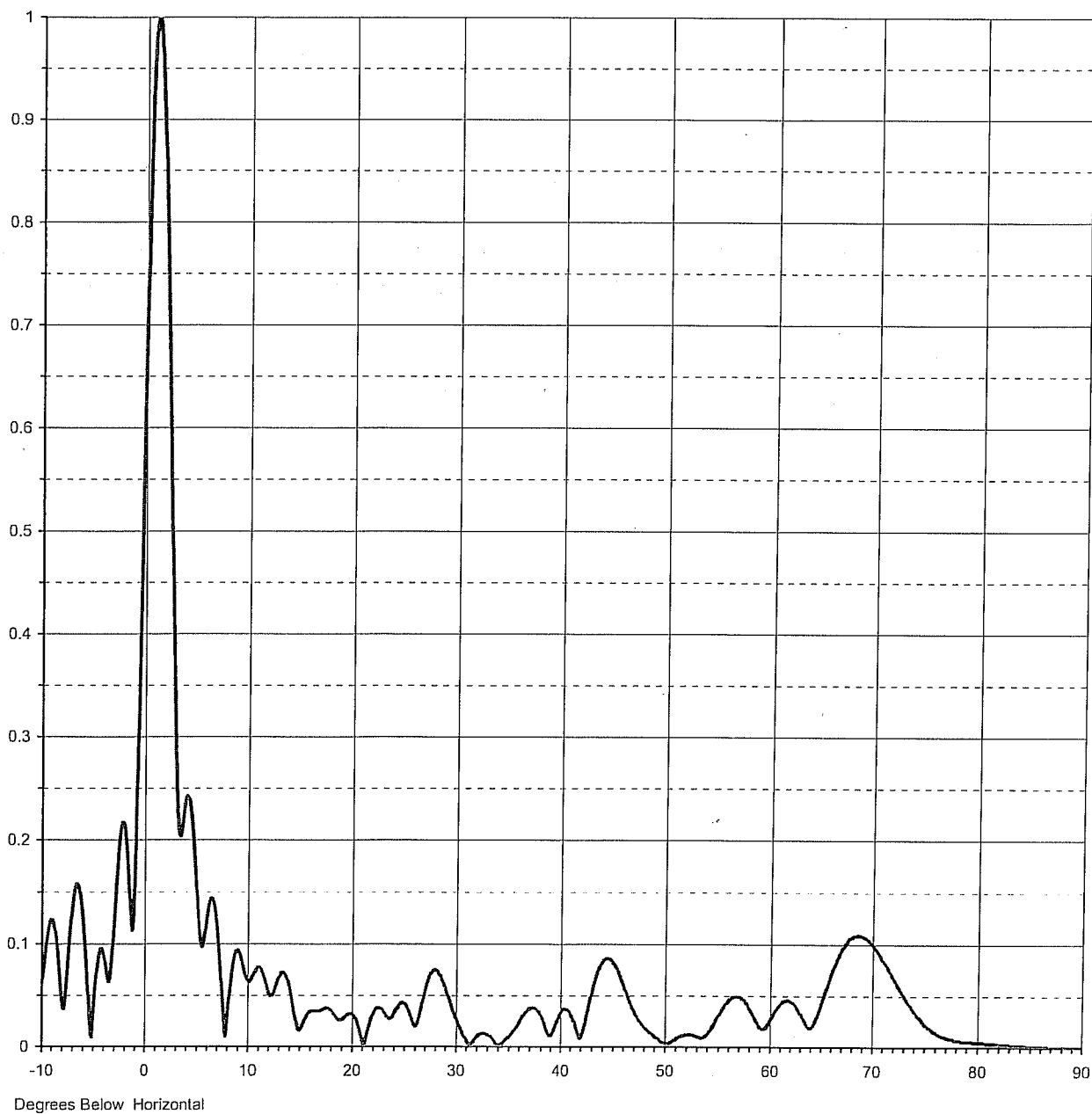
Beam Tilt **1.00 deg**

RMS Gain at Horizontal **11.40 (10.57 dB)**

Frequency **635.00 MHz**

Calculated / Measured **Calculated**

Drawing # **24B230100N-90**



Degrees Below Horizontal



Proposal Number

Date

22-Mar-04

Call Letters

WIRS-DT

Channel 41

Location

Ponce, PR

Customer

Antenna Type

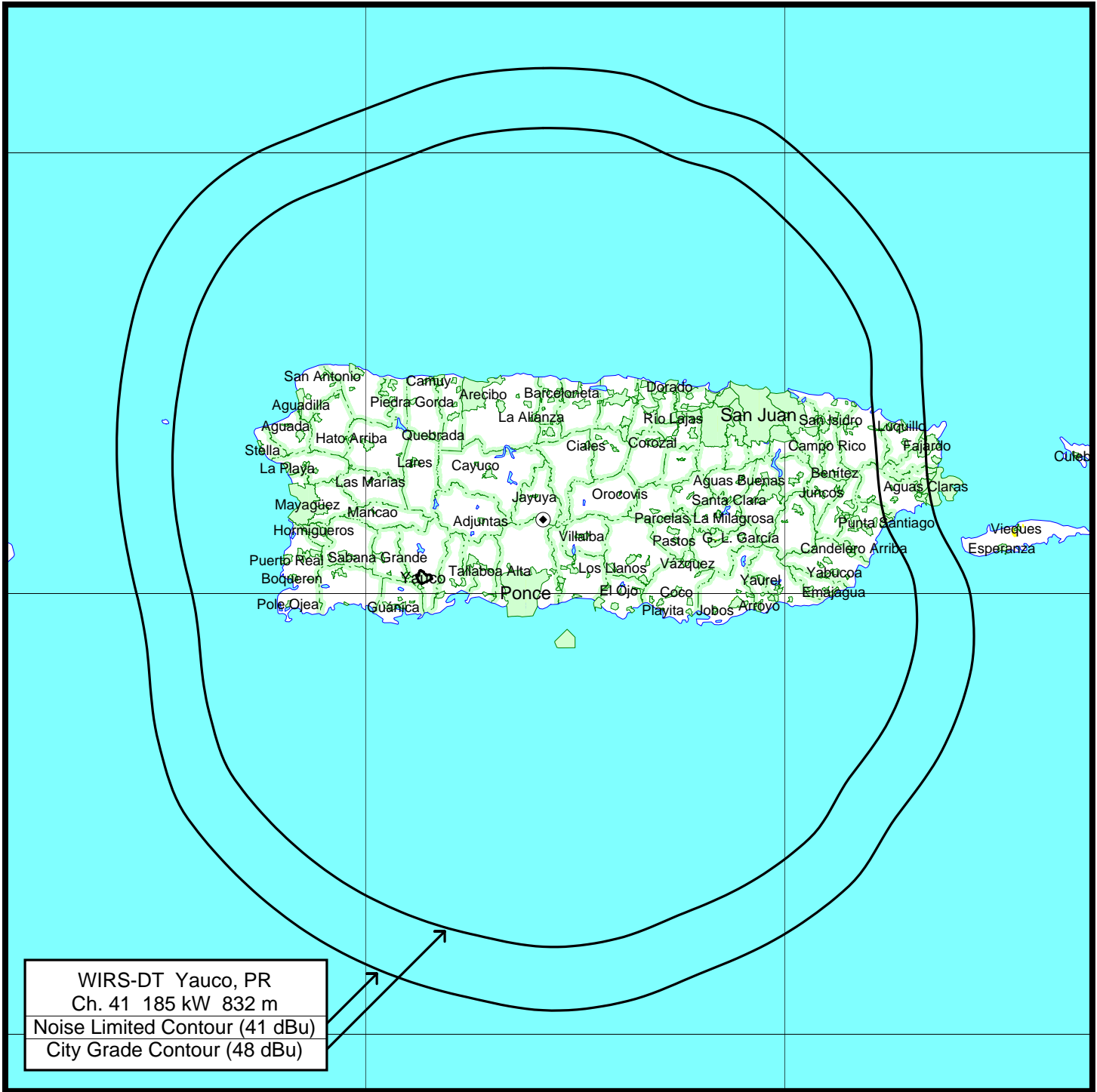
TFU-24DSB-A DC

TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing #: 24B230100N-90

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.065	2.4	0.531	10.6	0.070	30.5	0.018	51.0	0.007	71.5	0.075
-9.5	0.104	2.6	0.428	10.8	0.074	31.0	0.008	51.5	0.010	72.0	0.066
-9.0	0.123	2.8	0.334	11.0	0.077	31.5	0.002	52.0	0.012	72.5	0.058
-8.5	0.096	3.0	0.260	11.5	0.071	32.0	0.009	52.5	0.012	73.0	0.049
-8.0	0.041	3.2	0.215	12.0	0.054	32.5	0.013	53.0	0.010	73.5	0.041
-7.5	0.076	3.4	0.204	12.5	0.052	33.0	0.012	53.5	0.009	74.0	0.034
-7.0	0.138	3.6	0.215	13.0	0.066	33.5	0.008	54.0	0.012	74.5	0.028
-6.5	0.157	3.8	0.231	13.5	0.072	34.0	0.002	54.5	0.020	75.0	0.022
-6.0	0.122	4.0	0.241	14.0	0.060	34.5	0.004	55.0	0.029	75.5	0.018
-5.5	0.047	4.2	0.241	14.5	0.035	35.0	0.009	55.5	0.038	76.0	0.014
-5.0	0.037	4.4	0.229	15.0	0.016	35.5	0.015	56.0	0.045	76.5	0.011
-4.5	0.089	4.6	0.207	15.5	0.025	36.0	0.023	56.5	0.049	77.0	0.009
-4.0	0.088	4.8	0.178	16.0	0.034	36.5	0.031	57.0	0.049	77.5	0.008
-3.5	0.063	5.0	0.146	16.5	0.035	37.0	0.037	57.5	0.046	78.0	0.007
-3.0	0.123	5.2	0.117	17.0	0.035	37.5	0.038	58.0	0.038	78.5	0.006
-2.8	0.158	5.4	0.100	17.5	0.038	38.0	0.032	58.5	0.029	79.0	0.006
-2.6	0.187	5.6	0.099	18.0	0.036	38.5	0.020	59.0	0.020	79.5	0.005
-2.4	0.208	5.8	0.112	18.5	0.030	39.0	0.011	59.5	0.018	80.0	0.005
-2.2	0.217	6.0	0.127	19.0	0.026	39.5	0.020	60.0	0.025	80.5	0.005
-2.0	0.212	6.2	0.139	19.5	0.030	40.0	0.032	60.5	0.034	81.0	0.004
-1.8	0.191	6.4	0.144	20.0	0.032	40.5	0.037	61.0	0.041	81.5	0.004
-1.6	0.158	6.6	0.141	20.5	0.025	41.0	0.033	61.5	0.045	82.0	0.003
-1.4	0.122	6.8	0.130	21.0	0.008	41.5	0.020	62.0	0.045	82.5	0.003
-1.2	0.116	7.0	0.112	21.5	0.014	42.0	0.008	62.5	0.041	83.0	0.002
-1.0	0.169	7.2	0.088	22.0	0.031	42.5	0.027	63.0	0.033	83.5	0.002
-0.8	0.259	7.4	0.060	22.5	0.038	43.0	0.050	63.5	0.024	84.0	0.002
-0.6	0.367	7.6	0.031	23.0	0.035	43.5	0.069	64.0	0.019	84.5	0.001
-0.4	0.481	7.8	0.010	23.5	0.028	44.0	0.082	64.5	0.028	85.0	0.001
-0.2	0.595	8.0	0.030	24.0	0.031	44.5	0.086	65.0	0.042	85.5	0.001
0.0	0.703	8.2	0.053	24.5	0.040	45.0	0.083	65.5	0.057	86.0	0.001
0.2	0.801	8.4	0.072	25.0	0.042	45.5	0.074	66.0	0.072	86.5	0.001
0.4	0.882	8.6	0.085	25.5	0.034	46.0	0.061	66.5	0.085	87.0	0.000
0.6	0.945	8.8	0.092	26.0	0.021	46.5	0.047	67.0	0.095	87.5	0.000
0.8	0.984	9.0	0.094	26.5	0.030	47.0	0.036	67.5	0.102	88.0	0.000
1.0	1.000	9.2	0.090	27.0	0.052	47.5	0.026	68.0	0.107	88.5	0.000
1.2	0.991	9.4	0.083	27.5	0.069	48.0	0.020	68.5	0.109	89.0	0.000
1.4	0.958	9.6	0.075	28.0	0.075	48.5	0.015	69.0	0.107	89.5	0.000
1.6	0.902	9.8	0.071	28.5	0.070	49.0	0.011	69.5	0.104	90.0	0.000
1.8	0.827	10.0	0.065	29.0	0.058	49.5	0.007	70.0	0.099		
2.0	0.737	10.2	0.063	29.5	0.043	50.0	0.004	70.5	0.092		
2.2	0.637	10.4	0.066	30.0	0.029	50.5	0.004	71.0	0.084		

Figure 2



PREDICTED COVERAGE CONTOURS

DTV STATION WIRS-DT
YAUCO, PUERTO RICO
CH 41 185 KW 832 m

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

Figure 3

CDBS TV/DTV SEPARATION STUDY

Job Title:
Channel: 41
Class:
Type: DT

Separation Buffer: 65 km
Coordinates: 18-10-10 66-34-36
Zone: II

Call Id	City St	Status	File Num	Channel Zone	ERP HAAT	DA Id	Latitude Longitude	Bear	Dist. (km)	Req. min	max
WQTO 2175	PONCE PR	LIC C	BLET 19861222KU	26(Z) II	437.000 302	D 18253	18-04-50 066-44-54	241.4	20.7 3.44	24.1 Close	96.6
WQTO 2175	PONCE PR	CP C	BMPET 20001020AA	26(Z) II	1000.000 302	D 41621	18-04-50 066-44-54	241.4	20.7 3.44	24.1 Close	96.6
WQQZ-L 32142	PONCE PR	LIC C	BLTTL 19981208JA	33(Z) II	3.000 17800	D 17800	18-04-50 066-44-47	241.2	20.5 3.62	0.0 Class A	0.0
WRUA 15320	FAJARDO PR	LIC C	BLCT 19970216KE	34(Z) II	50.100 848	D 17477	18-18-36 065-47-41	79.2	84.2 12.45	24.1 Short	96.6
WJWN-T 58342	SAN SEBASTI PR	LIC C	BMLCT 20030516AC	38(Z) II	85.100 332	D 64591	18-19-06 067-10-42	284.7	65.7 30.87	24.1 Short	96.6
WMTJ 2174	FAJARDO PR	LIC C	BLET 19970826KH	40(Z) II	1000.000 839	D 18776	18-18-36 065-47-41	79.2	84.2 21.85	12.0 Short	106.0
DWIRS	YAUCO PR	DTV		41() II	50.100 852	D	18-10-10 066-34-36	90.2	0.0 223.70	223.7 Short	223.7
WIRS 39887	YAUCO PR	CP C	BPCDT 19991101AJ	41() II	50.000 828	D 40831	18-10-10 066-34-36	105.0	0.0		
WIRS 39887	YAUCO PR	LIC C	BLCT 19920207KF	42(Z) II	1510.000 852	D 17277	18-10-10 066-34-36	105.0	0.0 12.00	12.0 Close	106.0
WVEO 61573	AGUADILLA PR	LIC C	BLCT 19950606KE	44(Z) II	309.000 372	D 17350	18-19-06 067-10-42	284.7	65.7 30.87	24.1 Short	96.6
WVOZ-T 29000	PONCE PR	LIC C	BLCT 19860808KK	48(Z) II	61.700 247	D 17177	18-04-50 066-44-50	241.3	20.6 3.54	24.1 Close	96.6
WQSJ-L 48237	QUEBRADILLA PR	LIC C	BLTTL 20021106AA	48(+) II	10.000 38575	D 38575	18-28-53 066-55-36	313.2	50.6 26.51	0.0 Class A	0.0