

TECHNICAL EXHIBIT  
CLASS A TV MINOR CHANGE AMENDMENT TO THE  
APPLICATION FOR CONSTRUCTION PERMIT  
STATION W31BG (FACILITY ID 35134)  
YORKTOWN, VIRGINIA

MAY 22, 2003

CH 19(+) 150 KW-DA

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Technical Narrative

This technical exhibit supports a minor change amendment to the application to modify Class A TV station W31BG on channel 19 at Yorktown, Virginia (Facility ID 35134). According to the Federal Communications Commission (FCC) database, station W31BG is currently licensed to operate on channel 19 with a plus (+) carrier offset (BLTTA-20010711ACB). A non-directional (ND) antenna system is employed. The visual effective radiated power (ERP) is 0.69 kilowatt (kW). The antenna center of radiation is 94.5 meters (310 feet) above ground level (AGL), and 103.6 meters (340 feet) above mean sea level (AMSL). The transmitter site coordinates are 37-04-41, 76-26-47 (NAD-27). The FCC tower registration number for the structure supporting the W31BG antenna is 1063200.

Station W31BG has an application pending to make changes to its current operation (BPTTA-20021007AAF). The application proposes use of an Andrew ALP24L3-HSWC directional antenna (DA) system with the major lobe of the “cardioid” shaped antenna pattern oriented toward 290 degrees True. The proposed maximum visual ERP is 150 kW and the proposed antenna center of radiation is 87.8 meters (288 feet) AGL, and 96.9 meters (318 feet) AMSL. There is no change in the channel (19), carrier offset (plus), transmitter site (37-04-41, 76-26-47), supporting structure (1063200), or city of assignment (Yorktown, VA).

Charlottesville Broadcasting Corporation (CBC), permittee of a new analog (NTSC) TV station on channel 19(-) at Charlottesville, Virginia (BPCT-19860410KP, Facility ID 363), filed an objection to the pending W31BG application. CBC alleges that the pending W31BG application will cause excessive interference to its authorized operation on channel

19 at Charlottesville (2830 kW-DA, HAAT of 359.7 m, Rc of 529.7 m AMSL, 37-59-05, 78-28-49). CBC claims the pending W31BG application causes 0.68% interference to its CP service. Calculations using the FCC's processing software show less than 0.3% calculated interference being caused to the Charlottesville CP operation, well under the FCC's 0.5% "de minimis" threshold. While W31BG disagrees with CBC's interference allegations, it is amending the pending application to reduce the proposed ERP in half toward the Charlottesville CP operation in order to eliminate the interference issue.

### Proposed Facilities

Station W31BG proposes to amend its application by changing the directional antenna system. There will be no proposed change in the channel (19), carrier offset (plus), transmitter site (37-04-41, 76-26-47), supporting structure (#1063200), proposed maximum visual ERP (150 kW), antenna height (87.8 m AGL, 96.9 m AMSL), or city of assignment (Yorktown, VA). It is proposed to install an Andrew ALP24L3-HSOC directional antenna system on the currently authorized tower. The antenna pattern is "omnioid" shaped and the major lobe will be oriented toward 135 degrees True (see Figure 2). The peak power gain for the proposed antenna system is 42.86 (16.32 dB). It is proposed to couple the antenna system to a 5 kW transmitter through approximately 99.1 meters (325 feet) of Andrew 1-5/8 inch air dielectric Heliac transmission line. The efficiency of the transmission line on channel 19 is 70% (1.55 dB loss). The proposed transmitter power output (TPO) will be 5 kW. The combination of these parameters results in the proposed maximum visual ERP of 150 kW.

The CBC Charlottesville channel 19 CP site is located 206 kilometers along a bearing of 300 degrees True from the W31BG site. The proposed ERP toward the CBC CP site from the pending W31BG application is 133.7 kW. This amendment to the W31BG application reduces the proposed W31BG ERP toward the CBC CP site to 66.7 kW, or basically half the amount originally proposed by W31BG. This proposed ERP reduction should eliminate CBC's claims of prohibited interference to its CP operation.

NTSC Allocation Considerations

A study has been conducted using the pertinent provisions of the FCC rules to assure that the proposal will not create prohibited interference with other authorized or pending analog (NTSC) full service TV, LPTV, Class A TV, and land mobile radio service (LMRS) stations. There are no LMRS reservations on pertinent channels in the area for protection from the proposed W31BG channel 19 operation. The proposed W31BG operation complies with the FCC's allocation standards with respect to all known analog assignments, except for those listed below.

W18BS, License, Ch.18, Hampton, VA

New LPTV Application, Ch.19(N), Ocean City, MD, BNPTTL-20000807AEJ

New LPTV Application, Ch.19(N), Ocean City, MD, BNPTTL-20000831BIQ

WHRO-TV, License, Ch.15, Hampton-Norfolk, VA

New CP, Ch.19(-), Charlottesville, VA, BPCT-19860410KP

4 Applications, Ch.21, Virginia Beach, VA, (BPCT-19961001XL,

BPCT-19960724LE, BPCT-19960614KJ, and BPCT-19961001XY)

With respect to the 3 LPTV assignments noted above, interference calculations have been made using the procedures outlined in the FCC's OET-69 Bulletin and a 1 kilometer grid. The proposed W31BG operation causes new or unique interference to 646 people (0.17%) within the W18BS analog service area. The proposed W31BG operation causes no interference (ie, 0 people) within the analog services areas of the 2 Ocean City, Maryland channel 19 applications. The calculated interference is less than the FCC's 0.5% "de minimis" or acceptable interference threshold. A waiver of the FCC rules is respectfully requested based on use of the OET-69 procedures.

It is noted that the application of WERI-LP for channel 19 at Keysville, Virginia (BPTTL-20010226AAJ, Facility ID 68488) was dismissed by the FCC on May 6, 2003. Station WERI-LP now has an application pending for operation on channel 30 (BPTTL-20030108ABC). The WERI-LP application for channel 19 is no longer a consideration for allocation purposes.

It is noted that station WVBN-LP at Virginia Beach, Virginia (Facility ID 32941) no longer operates on channel 19. It is now licensed to operate on channel 18 (BLTTL-20030124ADP). The former channel 19 operation of station WVBN-LP no longer requires consideration for allocation purposes.

It is noted that LPTV station WJHJ-LP no longer operates on channel 19 at Williamsburg, Virginia (Facility ID 35133). The licensee of W31BG is also the licensee of WJHJ-LP (JBS, Inc.). As indicated by the "D" preceding station WJHJ-LP's call letters in the FCC's database, the assignment has been deleted and does not require consideration for allocation purposes.

With respect to the full service television assignments on channels 15 (WHRO-TV) and 21 (4 pending applications at Virginia Beach, VA), the proposed W31BG channel 19 operation will have small short-spacings. The following shows the separation from the W31BG site to these assignments, and the FCC's normal minimum separation requirement.

<u>TV Assignment</u>	<u>Channel</u>	<u>Separation</u>	<u>FCC Requirement</u>
WHRO-TV, Hampton-Norfolk, VA	NTSC-15	30.3 km	32 km
BPCT-19961001XL, Virginia Beach	NTSC-21	29.2	32
BPCT-19960724LE, Virginia Beach	NTSC-21	30.3	32
BPCT-19960614KJ, Virginia Beach	NTSC-21	30.3	32
BPCT-19961001XY, Virginia Beach	NTSC-21	31.3	32

It is noted that the proposed W31BG operation meets the FCC's minimum separation requirement to 9 additional applications pending for channel 21 at Virginia Beach.

Interference calculations have been made using the procedures outlined in the FCC's OET-69 Bulletin and a 1 kilometer grid. No calculated interference will be caused to these 5 analog assignments from the proposed W31BG operation.

With respect to CBC's CP for channel 19(-) at Charlottesville, Virginia (BPCT-19860410KP), the proposed W31BG operation causes new or unique interference to 16 people or 0.003% of the analog service population for the CBC CP operation. This complies with the FCC's 0.5% acceptable interference threshold.

A waiver of the FCC's rules is respectfully requested based on use of the OET-69 method.

Consideration has also been given to the intermodulation possibility between the proposed W31BG operation on channel 19 and the full service operations of WHRO-TV on channel 15, and the proposed operation on channel 21 at Virginia Beach. The channels impacted by the intermodulation combination of channels 15 and 19 (ie,  $2 \times F_1 - F_2$ ), are 22, 23 and 24. The channels impacted by the intermodulation combination of channels 19 and 21 are 16, 17, 18, 22, 23 and 24. The following is a list of the closest full service analog TV stations on the potentially intermodulation impacted channels. The bearing and distance from the W31BG site is provided.

<u>TV Station</u>	<u>Channel</u>	<u>Bearing</u>	<u>Distance</u>
WBOC-TV, Salisbury, MD	16	24 deg.	173.4 km
WNCN(TV), Goldsboro, NC	17	231	243.2
WCCB(TV), Charlotte, NC	18	244	435.0
WMPT(TV), Annapolis, MD	22	356	214.9
WCVE-TV, Richmond, VA	23	296	113.2
WUTB(TV), Baltimore, MD	24	354	246.8

Except for station WCVE-TV on channel 23, all of the other analog TV stations are adequately spaced so that there would be no intermodulation interference impact to their service areas. The WCVE-TV predicted Grade B contour extends about 81.5 kilometers toward station W31BG. The proposed W31BG predicted 74 dBu contour extends about 23.7 kilometers toward station WCVE-TV. The actual separation (113.2 km) is greater than the required separation to avoid service area overlap (105.2 km). Therefore, no intermodulation interference is expected to the WCVE-TV service area. A waiver of the FCC rules is

respectfully requested based on the above showings with respect to the intermodulation separations to WHRO-TV and the 4 pending channel 21 applications at Virginia Beach.

It is noted that CBC has filed an application to modify the construction permit for its analog operation on channel 19 at Charlottesville, Virginia (BMPCT-20030407AAM). The CBC application was filed 6 months after W31BG filed its Class A TV application (BPTTA-20021007AAF). As recognized in its application, CBC was fully aware of the prior filed W31BG application. Consideration of the CBC application is not required so long as W31BG does not increase facilities toward CBC. As evidenced by this amendment, W31BG is proposing to reduce ERP toward CBC's CP and application service areas.

The W31BG site is more than 600 kilometers from the nearest point of the US/Canada border, and more than 2000 kilometers from the closest point of the Mexican border. The W31BG site is 234 kilometers south of the FCC's closest monitoring station at Laurel, Maryland. The W31BG site is more than 180 kilometers east of the National Radio Quiet Zone in Virginia/West Virginia. It is more than 2500 kilometers east of the Table Mountain Radio Quiet Zone in Colorado. The closest radio astronomy site operating on channel 37 is at Green Bank, West Virginia, approximately 334 kilometers west-northwest of the W31BG site. These distances are sufficient to not be a coordination concern.

#### DTV Allocation Considerations

Pertinent DTV allotments and assignments on channels 18, 19 and 20 have been examined using the procedures outlined in the FCC's OET-69 Bulletin.<sup>1</sup> Figure 5 shows the calculated interference caused by the proposed W31BG operation to pertinent DTV allotments and assignments. The proposed W31BG operation complies with the FCC's 0.5% acceptable interference threshold. If necessary, a waiver of the FCC rules is respectfully

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<sup>1</sup> The duTreil, 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 1 km was employed. A Sun 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.

requested based on use of the procedures outlined in the FCC's OET-69 Bulletin with respect to DTV assignments and allotments.

It is noted that the FCC's database still includes an entry for the channel 19 DTV allotment to station WGNT at Portsmouth, Virginia. Station WGNT changed its DTV allotment to channel 50 and is now licensed to operate on DTV channel 50 (BLCDT-20020718AAK). It is believed the FCC should delete this superseded channel 19 DTV allotment entry from its database.

#### Radiofrequency Electromagnetic Field Exposure

The proposed W31BG facilities were evaluated in terms of potential radio frequency (RF) energy exposure at ground level to workers and the general public. A visual ERP of 150 kW with 10% aural power was assumed. A conservative relative field value of 0.3 (-10.5 dB) was assumed for the antenna's downward radiation (see Figure 2). The calculated power density at a point 2 meters (6.6 feet) above ground level is 0.0306 mW/cm<sup>2</sup>. This is less than 10% of the FCC's recommended limit of 0.34 mW/cm<sup>2</sup> for channel 19 for an "uncontrolled" environment. It is less than 2% of the FCC's recommended limit for a "controlled" environment.

Access to the transmitting site will be restricted and appropriately marked with warning signs. In the event that workers or other authorized personnel enter restricted areas 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. The proposed W31BG operation appears to be otherwise categorically excluded from environmental processing as it complies with all the criteria for such an exclusion in Section 1.1306.

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If there are questions concerning this technical exhibit, please communicate with the office of the undersigned.

John A. Lundin

du Treil, Lundin & Rackley, Inc.

201 Fletcher Avenue

Sarasota, Florida 34237

(941) 329-6000 voice

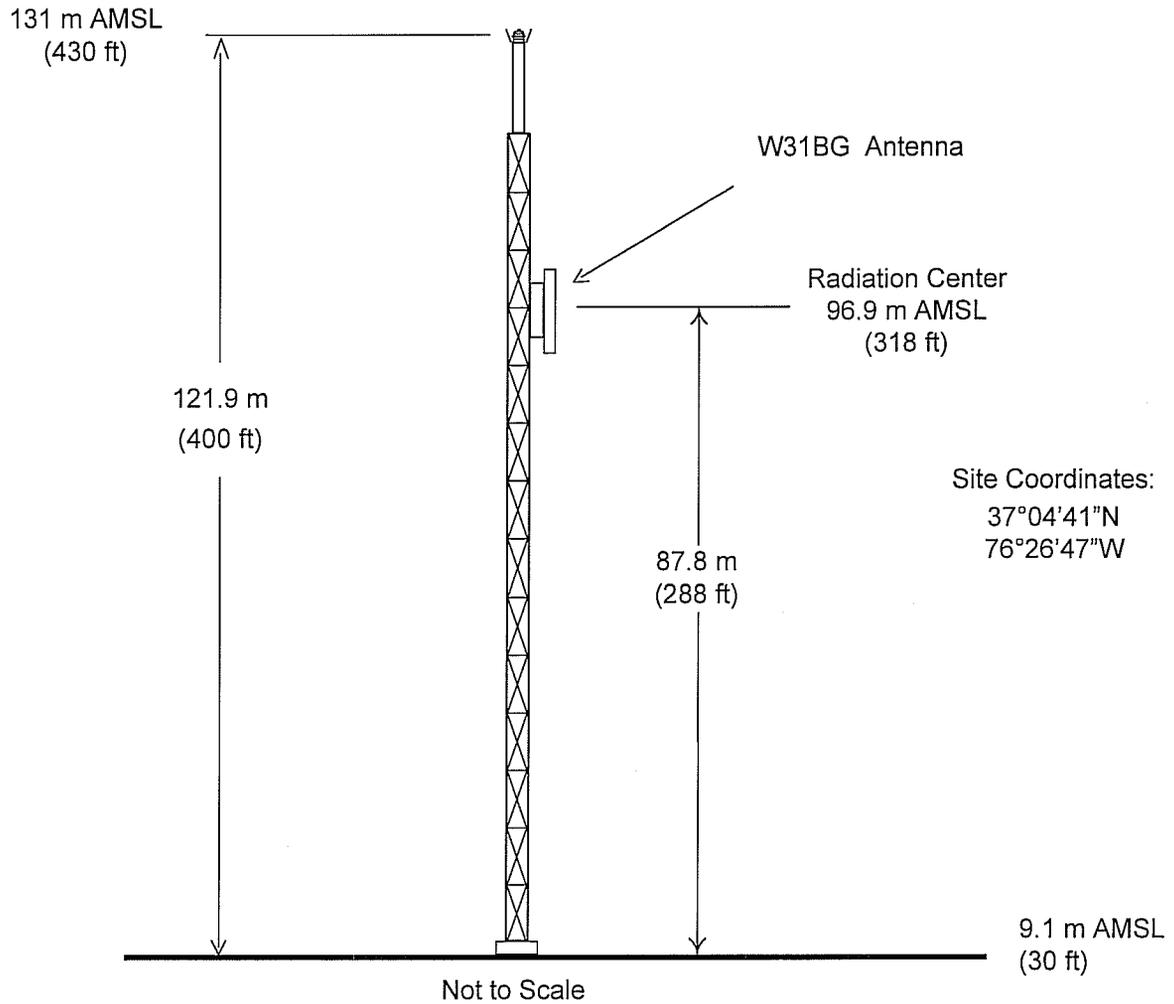
(941) 329-6030 fax

[john@DLR.com](mailto:john@DLR.com) e-mail

May 22, 2003

Figure 1

FCC Tower ID: 1063200



Site Coordinates:  
37°04'41"N  
76°26'47"W

## PROPOSED ANTENNA AND SUPPORTING STRUCTURE

STATION W31BG  
YORKTOWN, VIRGINIA  
CH 19(+) 150 KW-DA

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



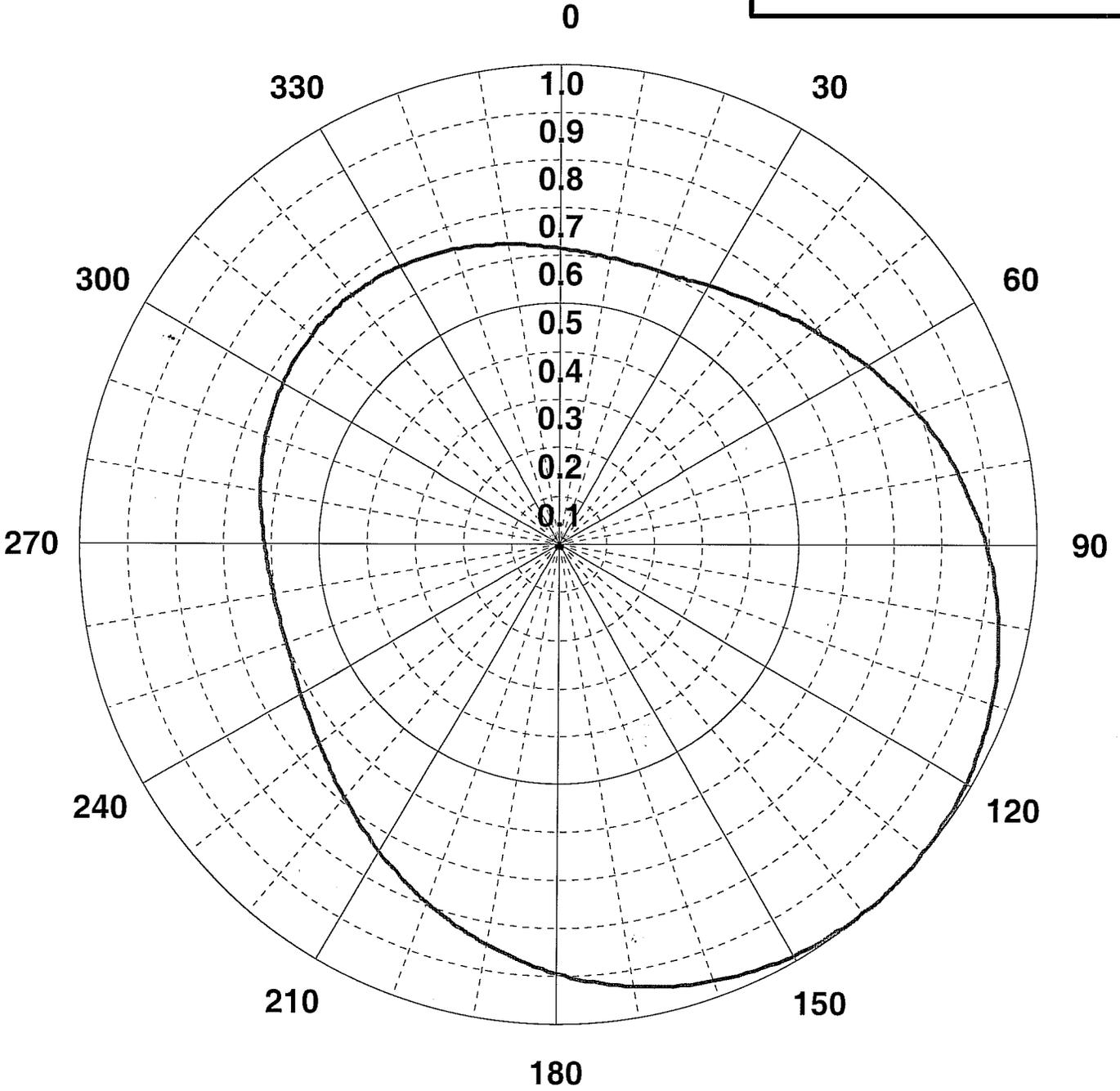
**ANDREW**

Channel: 19

Type: ALP-OC

Gain: 1.7 (2.3 dB)

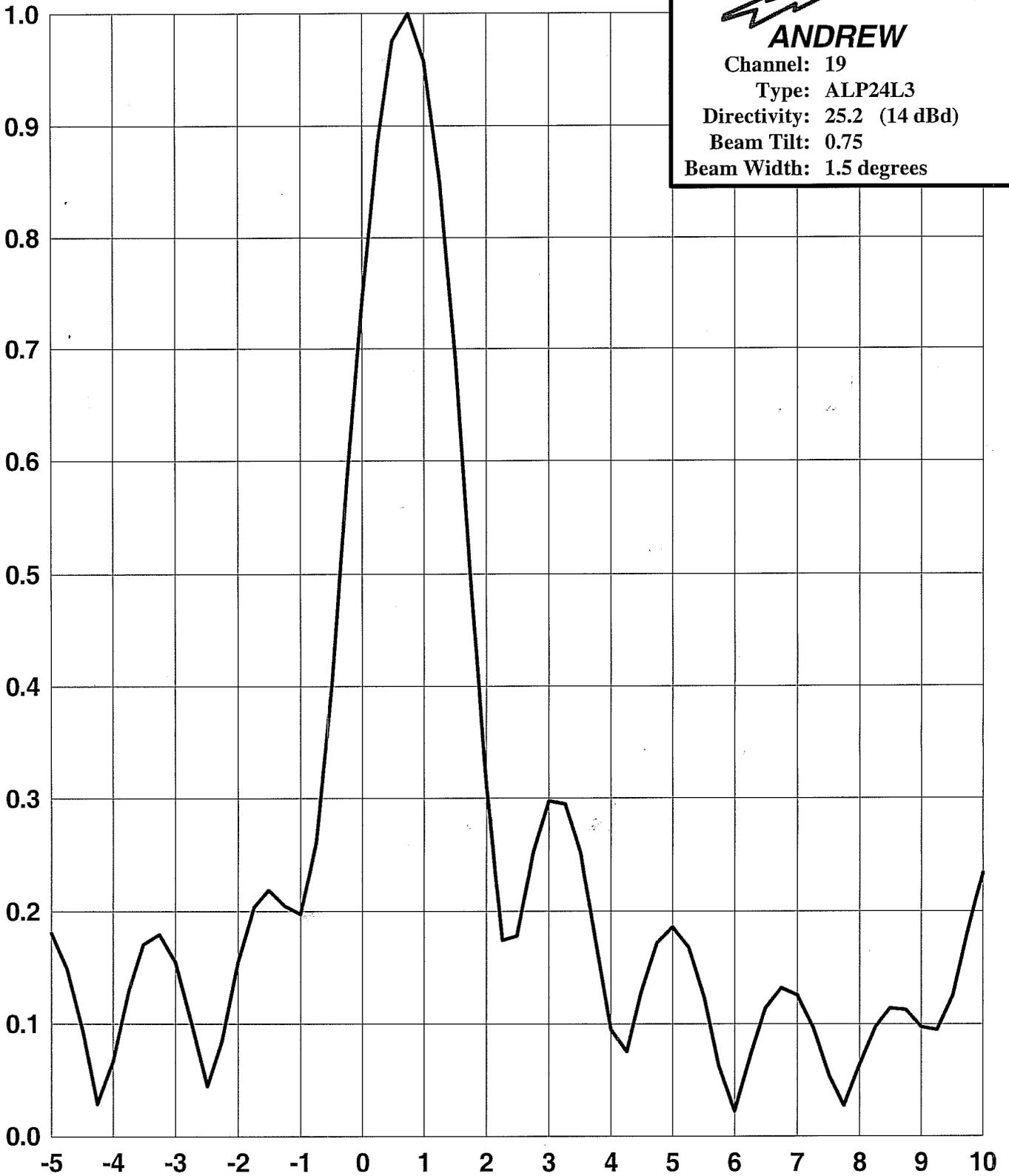
Polarization: Horizontal



ANDREW CORPORATION  
10500 W. 153rd Street  
Orland Park, Illinois U.S.A. 60462

Company:  
Site:  
Proposal Number:

Date: 5/15/2003  
Author:



ANDREW CORPORATION  
10500 W. 153rd Street  
Orland Park, Illinois U.S.A. 60462

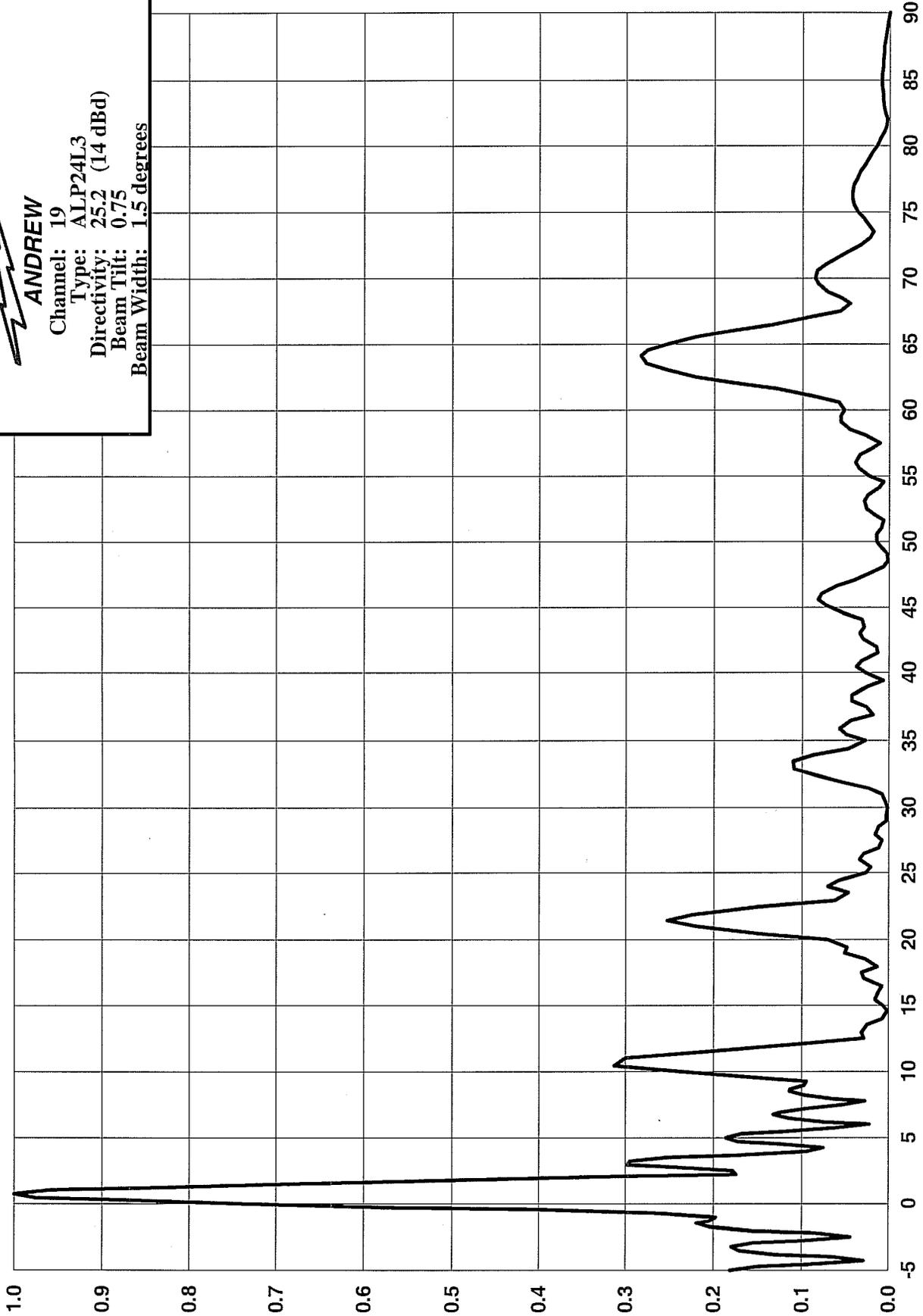
Company:  
Site:  
Proposal Number:

Date: 5/15/2003  
Author:



**ANDREW**

Channel: 19  
Type: ALP24L3  
Directivity: 25.2 (14 dBd)  
Beam Tilt: 0.75  
Beam Width: 1.5 degrees



Date: 5/15/2003

Author:

Company:

Site:

Proposal Number:

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