

TECHNICAL EXHIBIT  
APPLICATION FOR FM CONSTRUCTION PERMIT  
RADIO STATION KCDI (FM)  
BRYANT, ARKANSAS

APRIL 12, 2002

CH 227C3    5.6 KW (MAX-DA)    213 M

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Technical Narrative

The technical exhibit of which this narrative is part was prepared on behalf of a radio station KCDI (FM) assigned to Bryant, Arkansas. KCDI (FM) presently is licensed on Channel 227A for an effective radiated power of 6 kilowatts with an antenna height above average terrain of 100 meters.<sup>1</sup> By this instant application, it is proposed to modify the KCDI (FM) station class to Channel 227C3 employing the "one-step" allotment process. Section 73.215 short-spaced processing at the proposed transmitter site is also requested to the KASR (FM) on Channel 224A at Conway, Arkansas and the presently pending KZLE (FM) at Batesville, Arkansas application for construction permit. This proposal is contingent upon KZLE (FM) downgrading from a Class C to a Class C1 facility.

The proposal would not be subject to environmental processing in accordance with Section 1.1306. The proposed facility will be located at an existing, registered tower. It is believed that this proposal conforms with all applicable rules and regulations of the FCC.

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<sup>1</sup> See FCC File Number: BLH-20000626AAA.

One-Step Upgrade

It is proposed to modify the station class from the present Class A to Class C3 via the "one-step" upgrade process. Since the herein proposed transmitter site requests short-space processing under Section 73.215 of the Commission's Rules (as described below), a fully-spaced Channel 227C3 allotment reference site, described by the following geographic coordinates, is therefore proposed.

34° 38' 13" North Latitude  
92° 27' 27" West Longitude

This site is the location of a registered tower, number 1228986. Figure 1 is an Allocation Study for Channel 227C3 at the reference allotment site. The proposed allotment reference site satisfies the Commission's minimum distance separations contained in Section 73.207(b) of the Commission's Rules toward all other stations and allotments except toward KZLE(FM) on Channel 226C at Batesville, Arkansas. KZLE(FM) has a contingent application to downgrade from Channel 226C to Channel 226C1. Therefore, based upon the KZLE(FM) downgrade to Class C1, there are no allocation concerns.

Figure 2 is a coverage map showing that the allotment site's FCC predicted 70 dBu contour entirely encompasses the principal community of Bryant.

Proposed Transmitter Location

The transmitting facility will be located on an existing structure located atop *Crystal Mountain*. The location is uniquely described by the following geographic coordinates:

34° 47' 31" North Latitude  
92° 28' 38" West Longitude

The proposed site is shown on the map contained in Figure 3. A sketch showing the antenna and existing supporting structure is shown on Figure 4.

Interference Concerns

The 115 dBu predicted "blanketing" contour of the proposed station would extend radially 1 kilometer from the transmitting site. The applicant recognizes its responsibility to resolve complaints of interference, including blanketing and receiver-induced interference as required by Sections 73.315(b), 73.316(e) and 73.318.

FCC Predicted Coverage Contours

The predicted coverage contours for the proposed operation were calculated in accordance with the provisions of Section 73.313. Pursuant with current FCC practice, the distances to the contours were calculated without consideration given to terrain roughness correction factors.

The average terrain elevations from 3 to 16 kilometers along eight radials evenly spaced at 45 degree intervals were obtained from a previous co-located KABF(FM) application for construction permit. The terrain elevations were then used in combination with the effective radiated power for determining the distances to coverage contours.

Figure 5 is a map showing the predicted coverage contours. As the map illustrates, the FCC predicted 70 dBu contour does not entirely encompass the principal community of Bryant. The FCC 70 dBu coverage contour encompasses 17.3 square kilometers containing 7,275 persons of Bryant, this is 73% of the area and 75% of the population of Bryant.<sup>2</sup> This is less than the minimum 80% FCC requirement.

#### Prediction of 70 dBu Coverage Over Bryant Community

The 70 dBu contour, calculated by employing the FCC propagation curves, is predicted to extend a radial distance of approximately 21 kilometers toward the principal community of Brant as shown on Sheet 1 of Figure 6. The city is intersected by the FCC predicted 70 dBu contour but within the FCC predicted 60 dBu contour.

Study of the elevation profiles between the transmitter site and Bryant, provided in Sheets 2, 4 and 6 of Figure 6, indicates that higher field strengths would be expected over the community than predicted using the FCC propagation curves. In order to verify these enhanced

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<sup>2</sup> The community of Bryant contains a population of 9,764 persons according to the 2000 U.S. Census over an area of 23.6 square kilometers.

propagation paths, a computer model employing the Commission's proposed alternate propagation model was employed. Using this point-to-point irregular terrain model, data was obtained and plotted on the attached graphs, Sheets 3, 5 and 7 of Figure 6.

Employing the Commission's interpolating procedure, the 70 dBu coverage contour is actually predicted to extend between 29 to 39 kilometers, thereby entirely encompassing the community of Bryant.

Additionally, the Commission's present staff policies, with respect to the application of the Longley-Rice model, are satisfied. As evident within the exhibit, the FCC predicted 60 dBu coverage contour entirely encompasses the principal community of Bryant and the radial distance to the alternate propagation model contour exceeds the distance to the comparable FCC coverage contour by ten percent.

#### Proposed Site Allocation Study

Channel 227C3 at the proposed site will satisfy the Commission's minimum separation distance requirements, specified in Section 73.207(b) of the Rules, to all assignments except to the licensed KASR(FM) on Channel 224A at Conway, Arkansas and KZLE(FM) at Batesville, Arkansas.

Section 73.215 processing is requested towards KASR(FM). The actual separation distance is 36.1 kilometers from the proposed KCDI(FM) to KASR(FM); the minimum fully spaced (Section 73.207) separation distance is 42 kilometers; the minimum short-spaced (Section 73.215)

separation distance is 36 kilometers. There is no predicted prohibited contour overlap between the proposed KCDI(FM) and KASR(FM), as shown on Sheet 2 of Figure 7.

As for KZLE(FM) at Batesville, Arkansas, Section 73.215 processing is requested towards the pending application for construction permit on Channel 226C1. This pending contingent application is to downgrade KZLE(FM) from a Class C to Class C1. The actual separation distance is 139.8 kilometers from the proposed KCDI(FM) to KZLE(FM); the minimum fully spaced (Section 73.207) separation distance is 144 kilometers; the minimum short-spaced (Section 73.215) separation distance is 133 kilometers. There is no predicted prohibited contour overlap between the proposed KCDI(FM) and KZLE(FM) [Class C1], as shown on Sheet 2 of Figure 7.

#### Radiofrequency Electromagnetic Field Exposure

The proposed facility has been evaluated in terms of potential radiofrequency electromagnetic field exposure at ground level in accordance with OST Bulletin No. 65, *Evaluating Compliance with FCC Specified Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields*.<sup>3</sup> The power density at the base of the tower was calculated using the appropriate procedure contained in Section 2, Supplement A, *Additional Information for Radio and Television Broadcast Stations*, of the Bulletin.

For the calculation, a combined horizontal and vertical polarized effective radiated power of 15 kilowatts is employed with a radiation center of 61 meters (200 feet) above ground level. A Shively 6800 series 3 bay one-



wavelength spaced antenna is proposed. Using this antenna type in the Commission's *FM Model* RFR calculation program, it is calculated that the maximum power density at ground level resulting from this facility is less than  $11 \mu\text{W}/\text{cm}^2$ . This is about six percent of the maximum Commission guideline value in an uncontrolled environment for a FM radio station.<sup>4</sup>

The only other known co-located high powered emitter is KABF(FM) on Channel 202C1 assigned to Little Rock. KABF(FM) operates with a circularity polarized effective radiated power of 91 kilowatts with a radiation center of 85 meters (280 feet) above ground level. KABF(FM) is licensed to employ a twelve-bay Harris FMXH-12AC 1 wavelength spaced transmitting antenna. Again using the *FM Model* program, the calculated ground level power density is less than  $50 \mu\text{W}/\text{cm}^2$ . This is twenty-five percent of the maximum Commission guideline value in an uncontrolled environment for a FM radio station. Therefore, the cumulative ground level power density from both KABF(FM) and the proposed KCDI(FM) will be less than 100 percent of the uncontrolled standard and in compliance with the Commission's Rules.

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<sup>3</sup> OET Bulletin 65, Second Edition 97-01, August, 1997.

<sup>4</sup> The FCC maximum guideline for a FM broadcast station in an uncontrolled environment is  $0.2 \text{ mW}/\text{cm}^2$ .

When it becomes necessary for workers to ascend the tower, appropriate measures, such as reduction or shut down of power if necessary, shall be taken to ensure that the human exposure to radiofrequency electromagnetic will not exceed the FCC guidelines.

Charles A. Cooper

April 12, 2002

du Treil, Lundin & Rackley, Inc.  
201 Fletcher Avenue  
Sarasota, Florida 34237  
941.329.6000

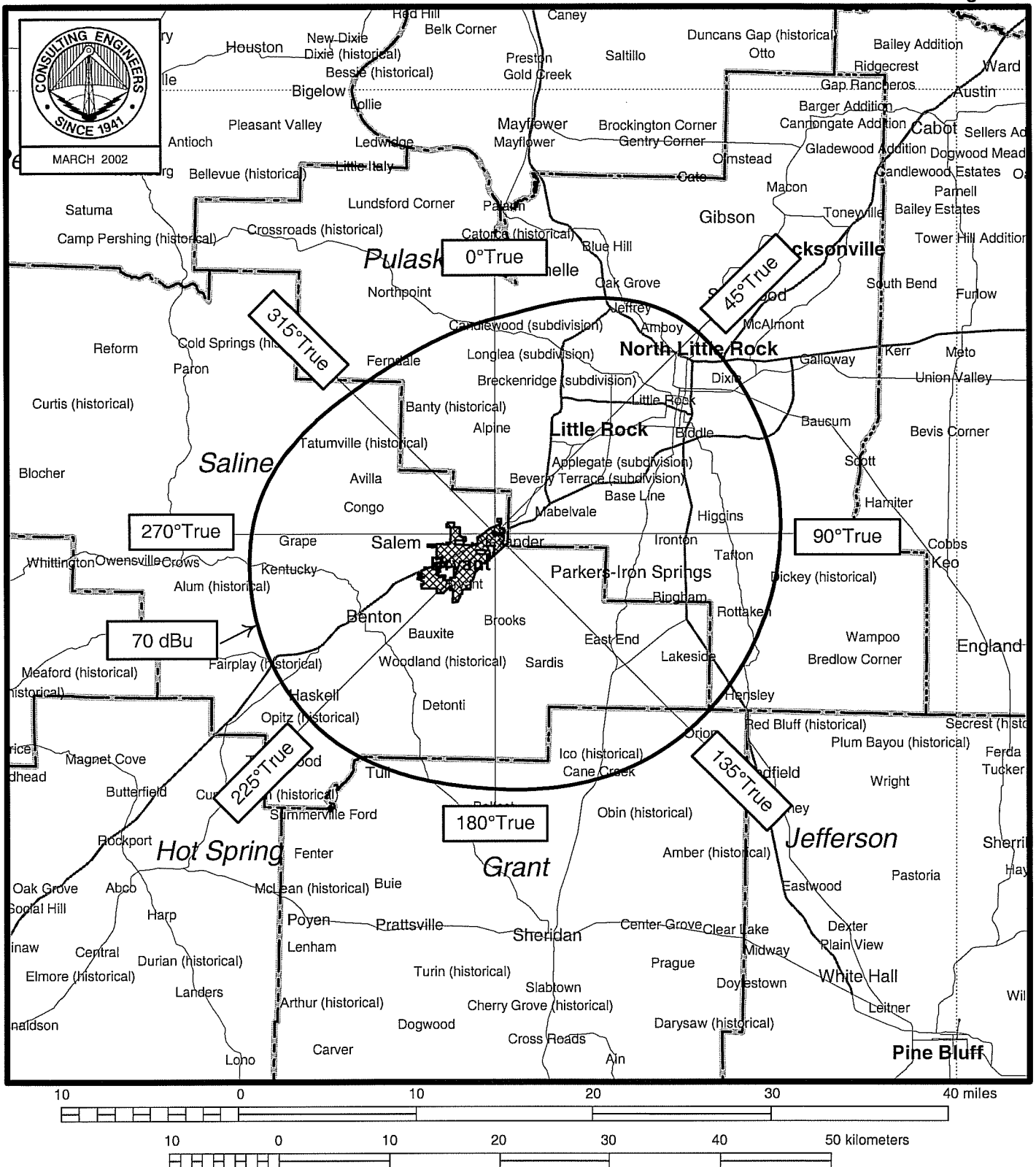
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 BRYANT, ARKANSAS  
 CH 227C3    5.6 KW (MAX-DA)    213 M

Channel 227C3 Allocation Study at Reference Site

34° 38' 13" North Latitude  
 92° 27' 27" West Longitude  
 (Tower Registration Number: 1228986)

Call Id	City St	Status	File Num	Channel Freq	ERP HAAT	DA Id	Latitude Longitude	73 215	Bear	Dist. (km)	Req. min
KASR 14465	CONWAY AR	LIC C	BMLH 19900111KF	224A 92.7	3.4 86	N	35-06-46 092-24-42	N	4.5	52.95	42.0
KVRE 8150	HOT SPRINGS AR	LIC C	BMLH 19950615KA	225A 92.9	6. 100	N	34-38-59 093-03-33	N	271.6	55.18	42.0
KVRE 8150	HOT SPRINGS AR	LIC C	BMPH 20011002ABX	225C3 92.9	25 100	Y 41289	34-38-34 093-04-08	Y	270.8	56.06	43.0
KZLE 72262	BATESVILLE AR	LIC C	BLH 19970905KB	226C 93.1	100 300	N	35-53-29 091-43-32	N	25.3	154.29	176.0
<i>[Proposed in contingent application to downgrade KZLE(FM) from Class C to Class C1. See next record.]</i>											
KZLE 72262	BATESVILLE AR	LIC C	BLH 20000626AAA	226C1 93.1	100 300	N	35-53-29 091-43-32	N	25.3	154.29	144.0
KCDI 39751	BRYANT AR	LIC C	BLH 20000626AAA	227A 93.3	6 100		34-30-27 092-32-48	N	209.6	16.53	
<i>[Applicant's existing Class A licensed facility.]</i>											
KAGL 48949	EL DORADO AR	LIC C	BLH 20010809AAO	227C3 93.3	8 113	N	33-16-16 092-39-17	N	186.9	152.59	153.0
<i>[Separation distance rounds to 153 kilometers. No allocation concern.]</i>											
PADD	AMITY AR	ADD C	RM KS203	228A 93.5			34-15-14 093-27-02		245.2	100.67	89.0

Figure 2



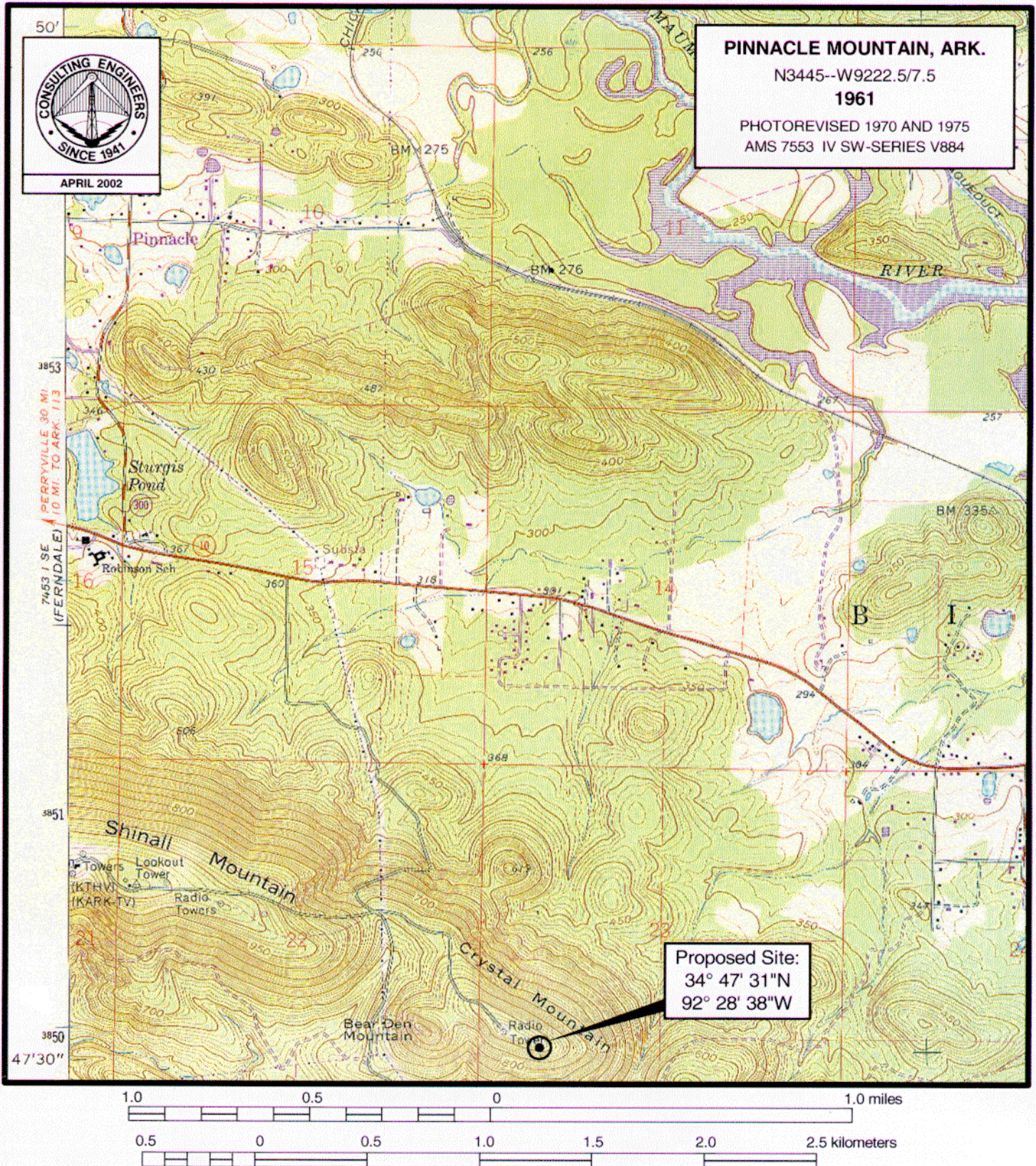
**FCC PREDICTED COVERAGE CONTOUR  
CHANNEL 227C3 ALLOTMENT REFERENCE SITE  
ASSUMED MAXIMUM CLASS C3 FACILITIES**

**RADIO STATION KCDI(FM)  
BRYANT, ARKANSAS  
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du Treil, Lundin & Rackley, Inc., Sarasota, Florida



Figure 3

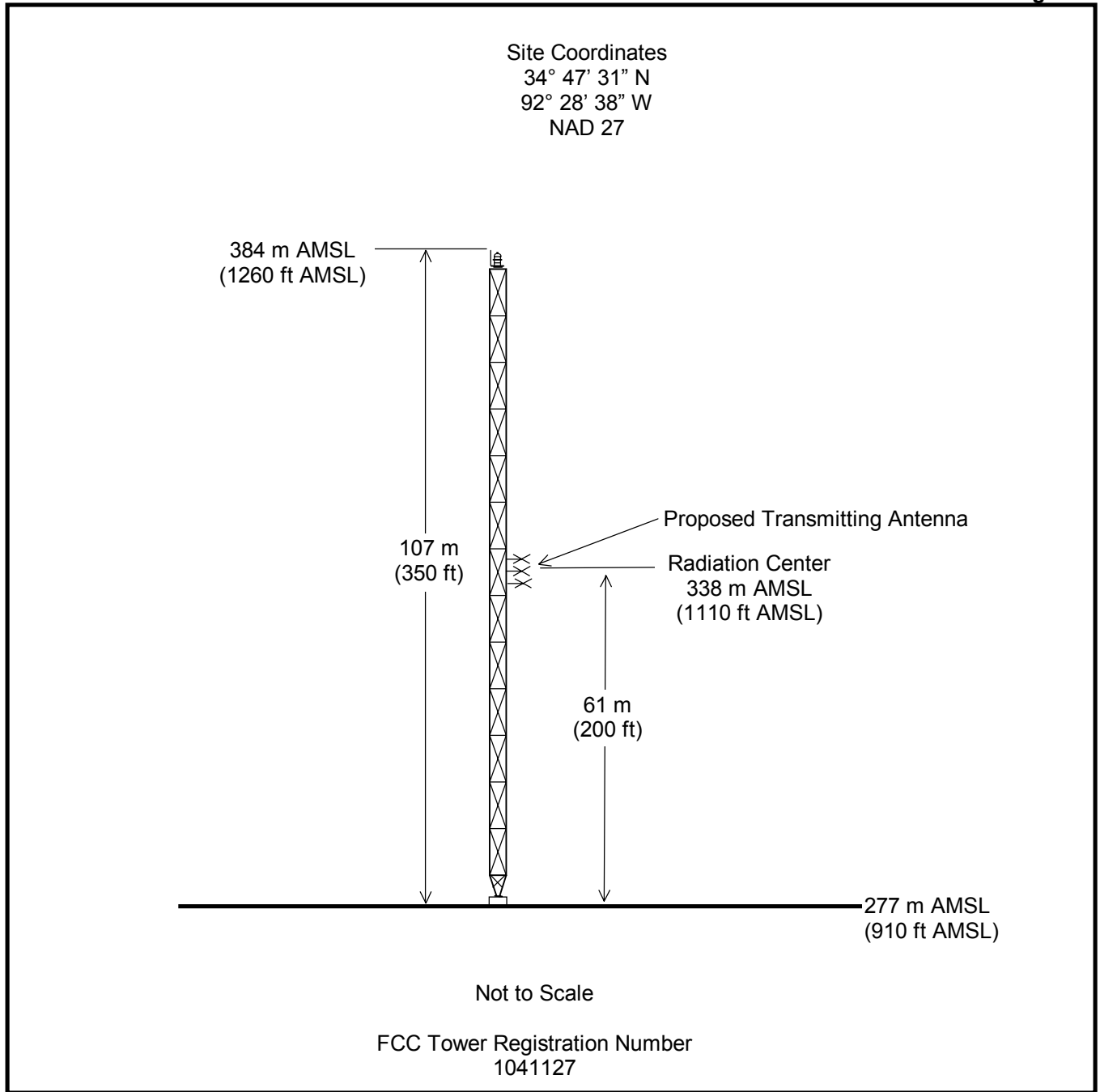


## PROPOSED TRANSMITTER LOCATION

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



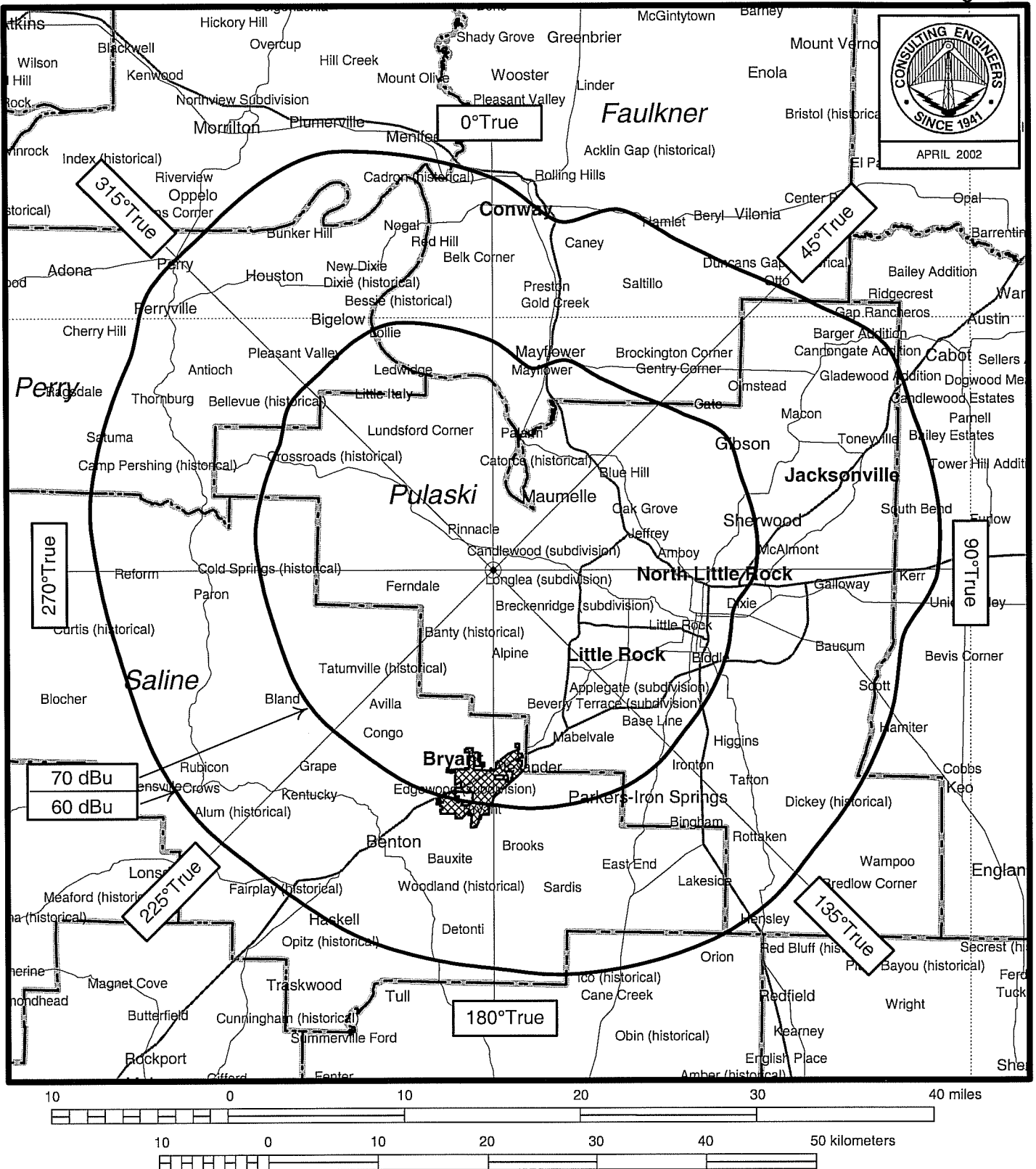


## **PROPOSED ANTENNA AND SUPPORTING STRUCTURE**

RADIO STATION KCDI(FM)  
 BRYANT, ARKANSAS  
 CH 227C3 5.6 KW (MAX-DA) 213 M

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Figure 5

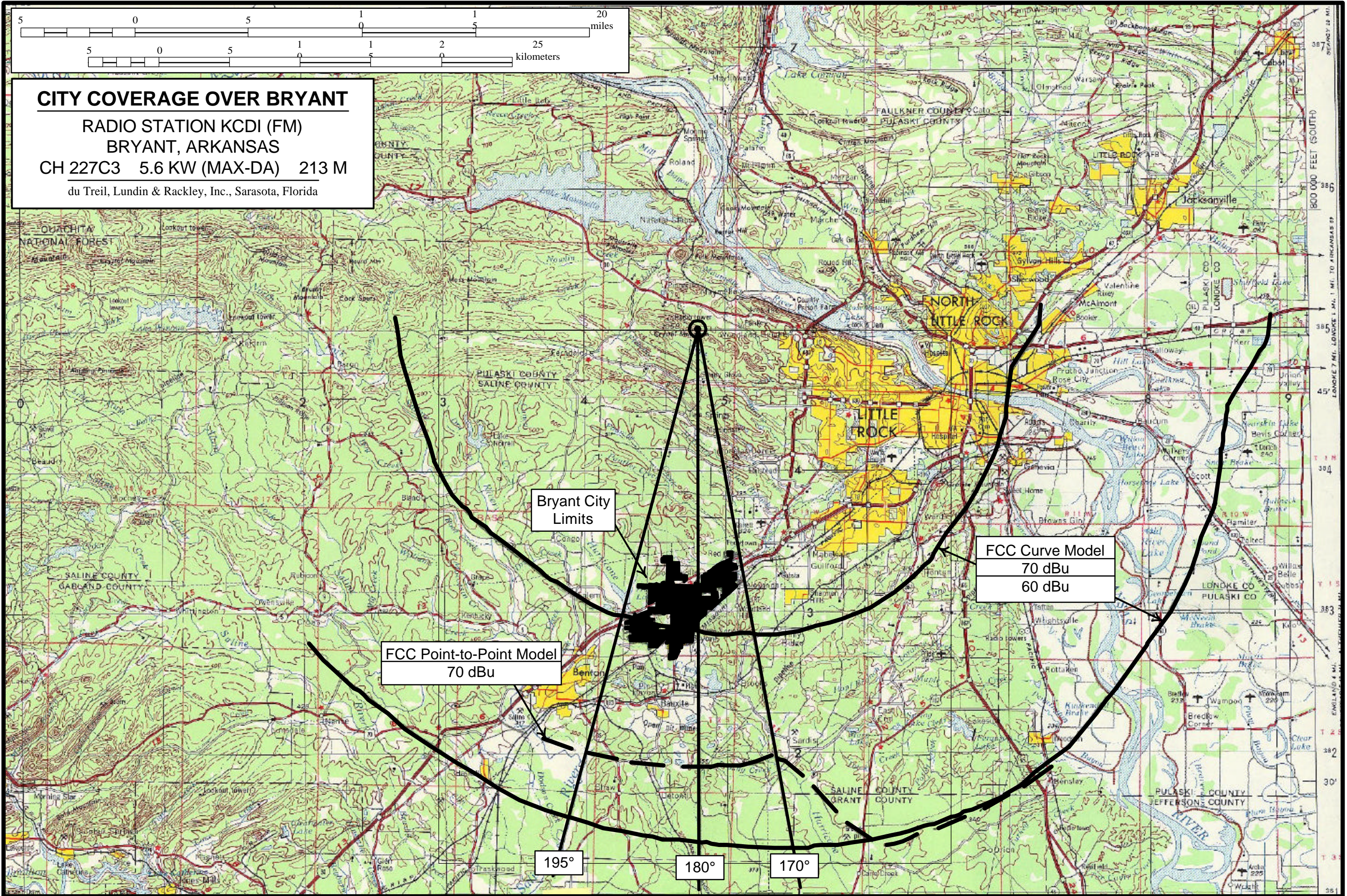


## FCC PREDICTED COVERAGE CONTOURS

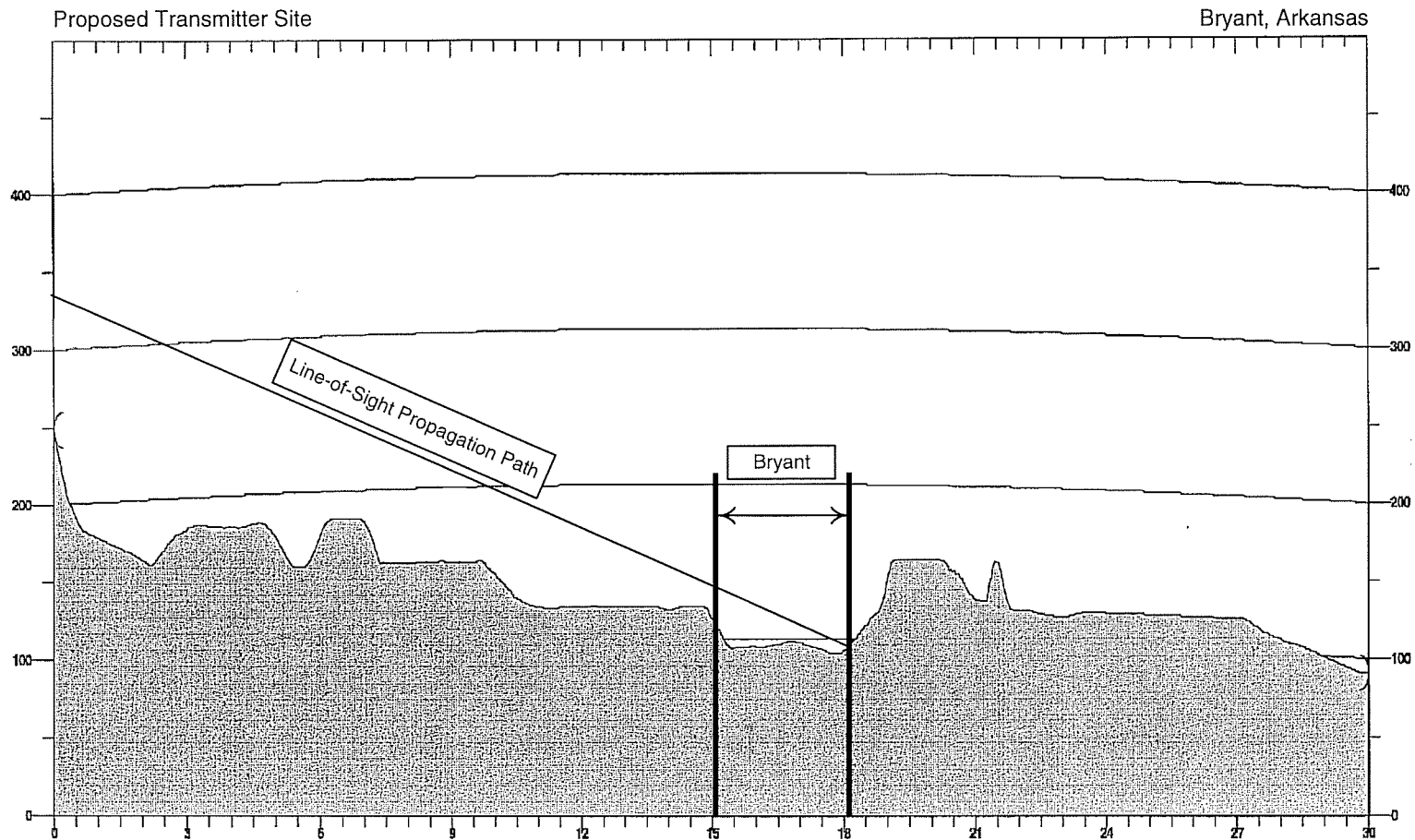
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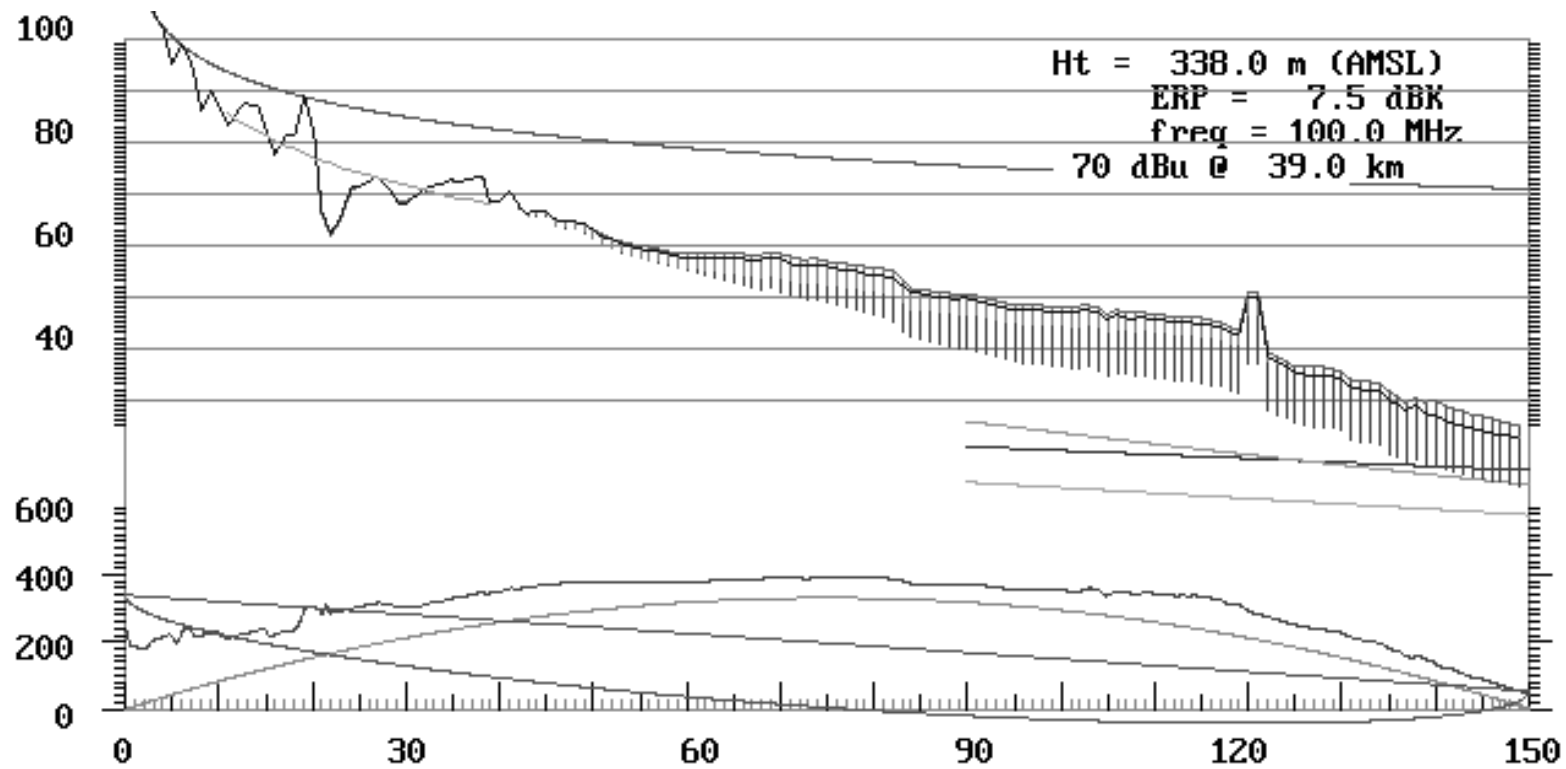




## 170° TERRAIN PROFILE TO BRYANT, ARKANSAS

RADIO STATION KCDI (FM)  
 BRYANT, ARKANSAS  
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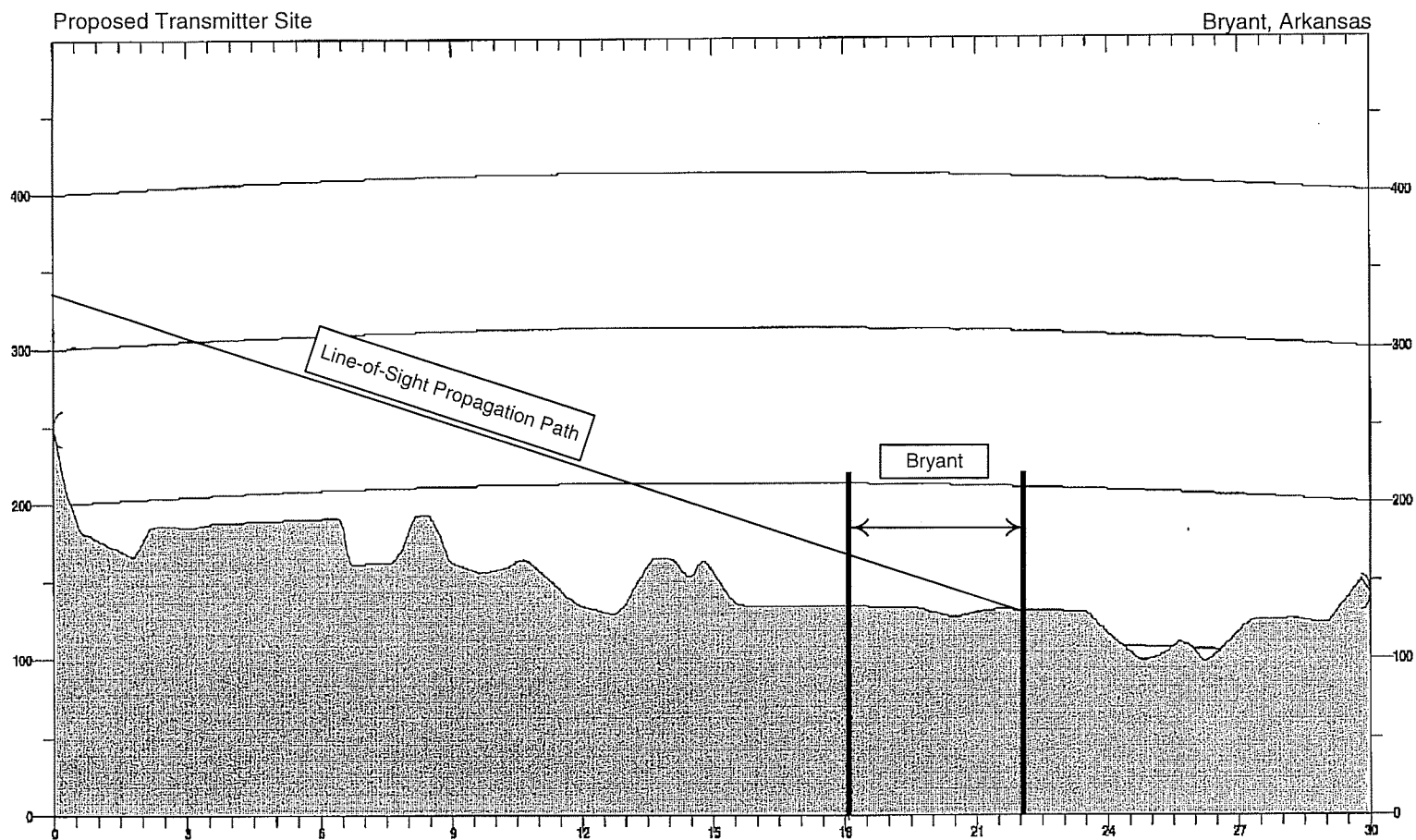
du Treil Lundin & Rackley, Inc. Sarasota, Florida



**PROPOSED FCC PROPAGATION MODEL  
170° TRUE (TOWARD BRYANT)**

RADIO STATION KCDI(FM)  
BRYANT, ARKANSAS  
CH 227C3 5.6 KW (MAX-DA) 213 M

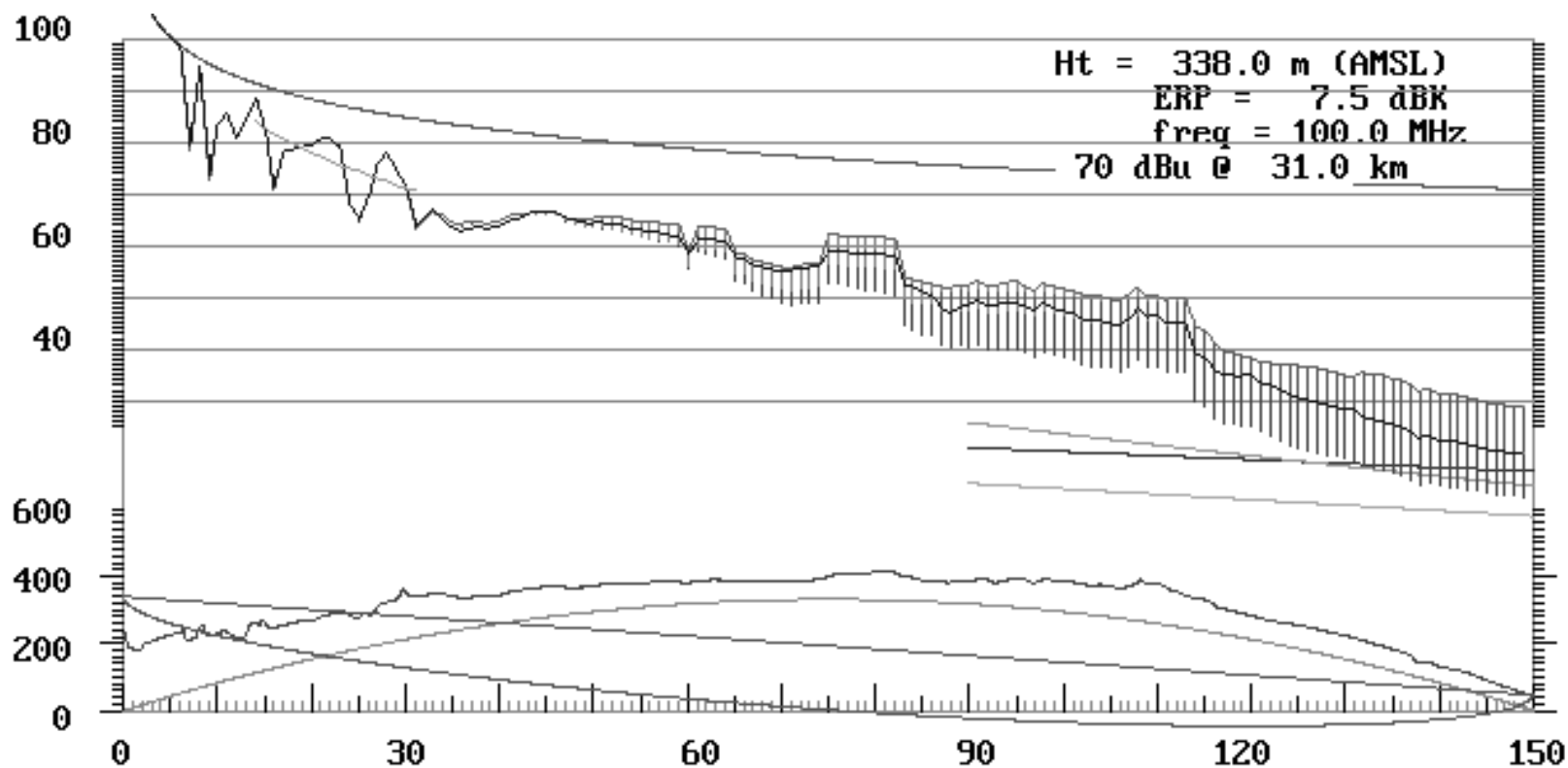
du Treil, Lundin & Rackley, Inc., Sarasota, Florida



## **180° TERRAIN PROFILE TO BRYANT, ARKANSAS**

RADIO STATION KCDI (FM)  
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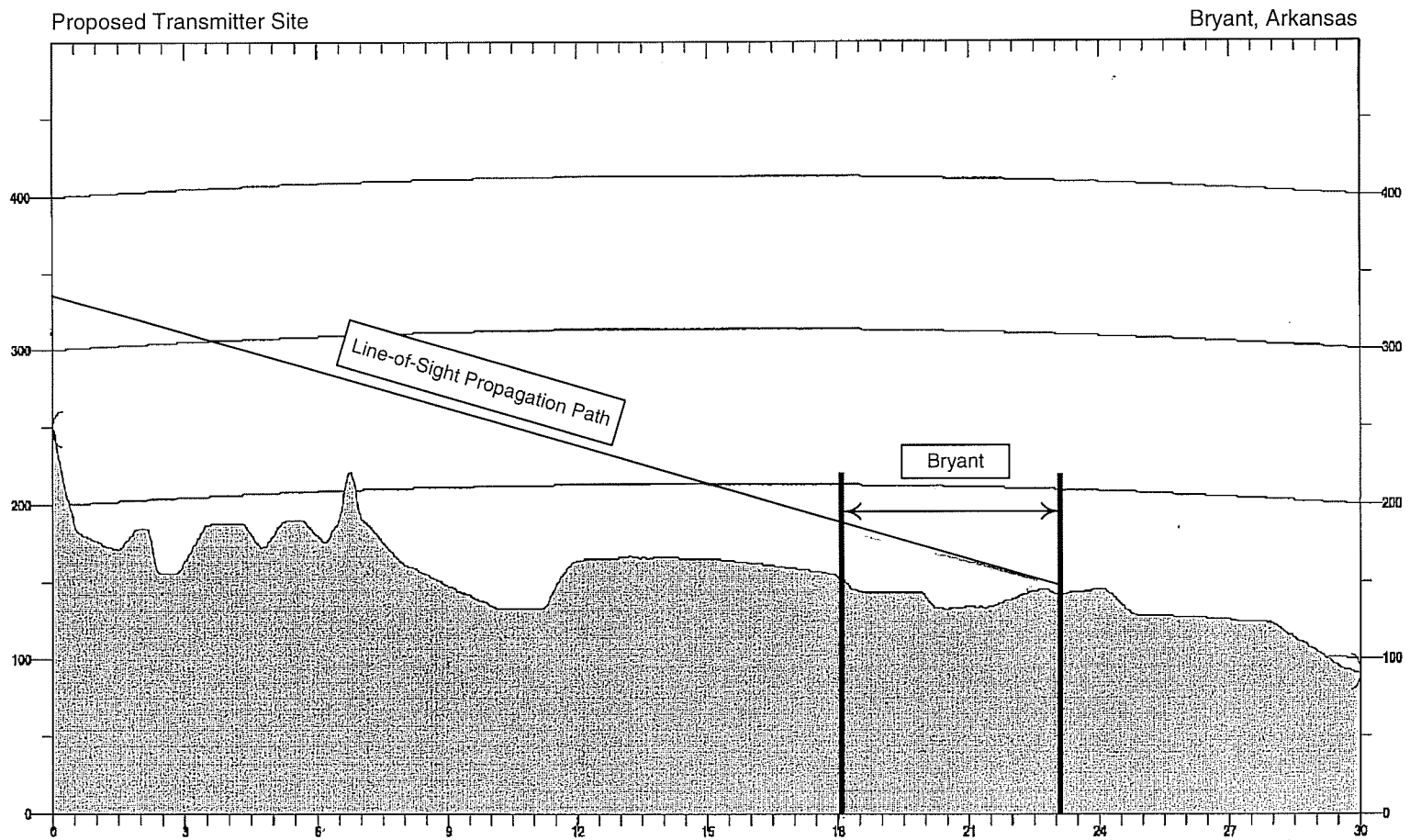
du Treil, Lundin & Rackley, Inc., Sarasota, Florida



**PROPOSED FCC PROPAGATION MODEL  
180° TRUE (TOWARD BRYANT)**

RADIO STATION KCDI(FM)  
BRYANT, ARKANSAS  
CH 227C3 5.6 KW (MAX-DA) 213 M

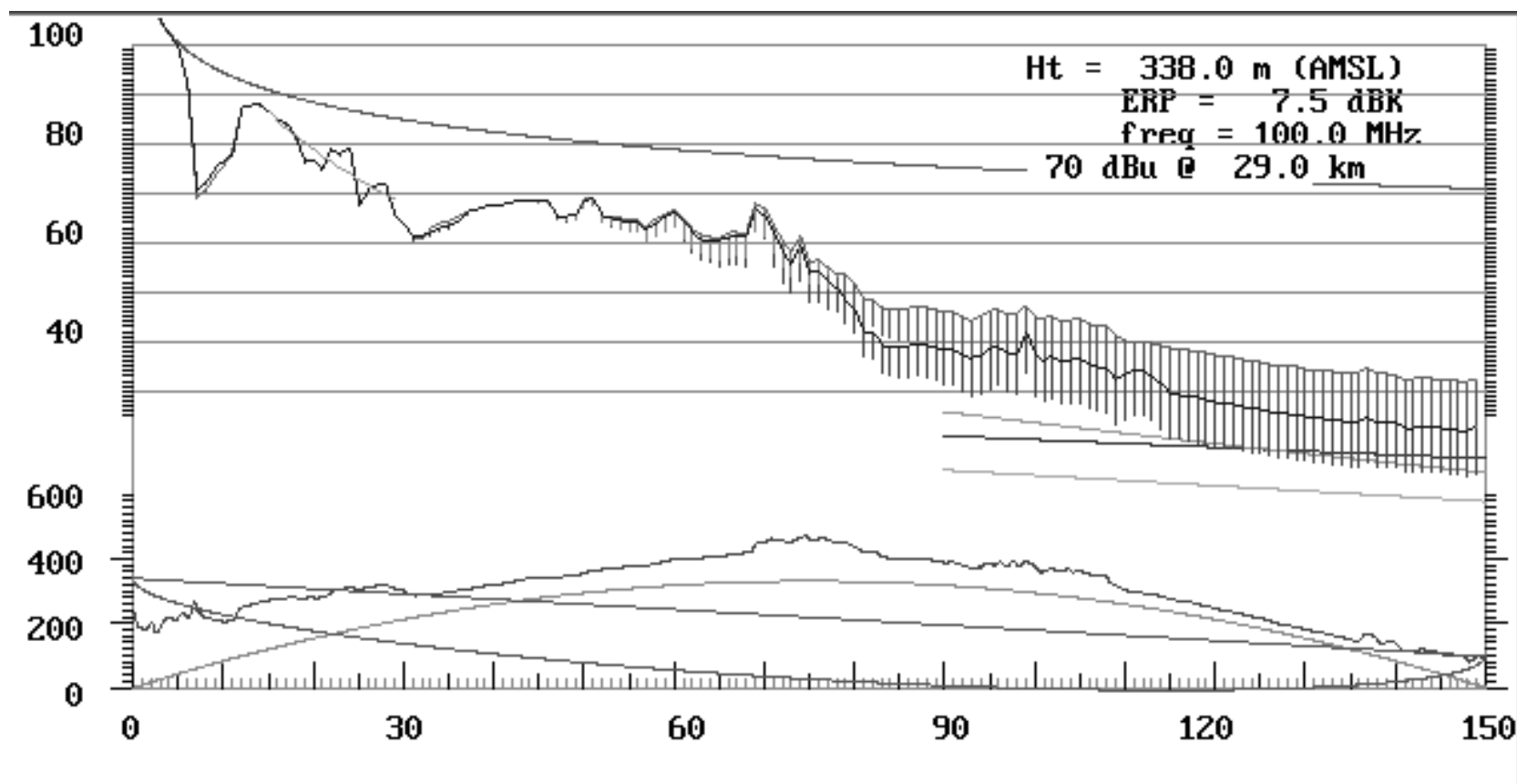
du Treil, Lundin & Rackley, Inc., Sarasota, Florida



## **195° TERRAIN PROFILE TO BRYANT, ARKANSAS**

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



**PROPOSED FCC PROPAGATION MODEL  
195° TRUE (TOWARD BRYANT)**

RADIO STATION KCDI(FM)  
BRYANT, ARKANSAS  
CH 227C3 5.6 KW (MAX-DA) 213 M

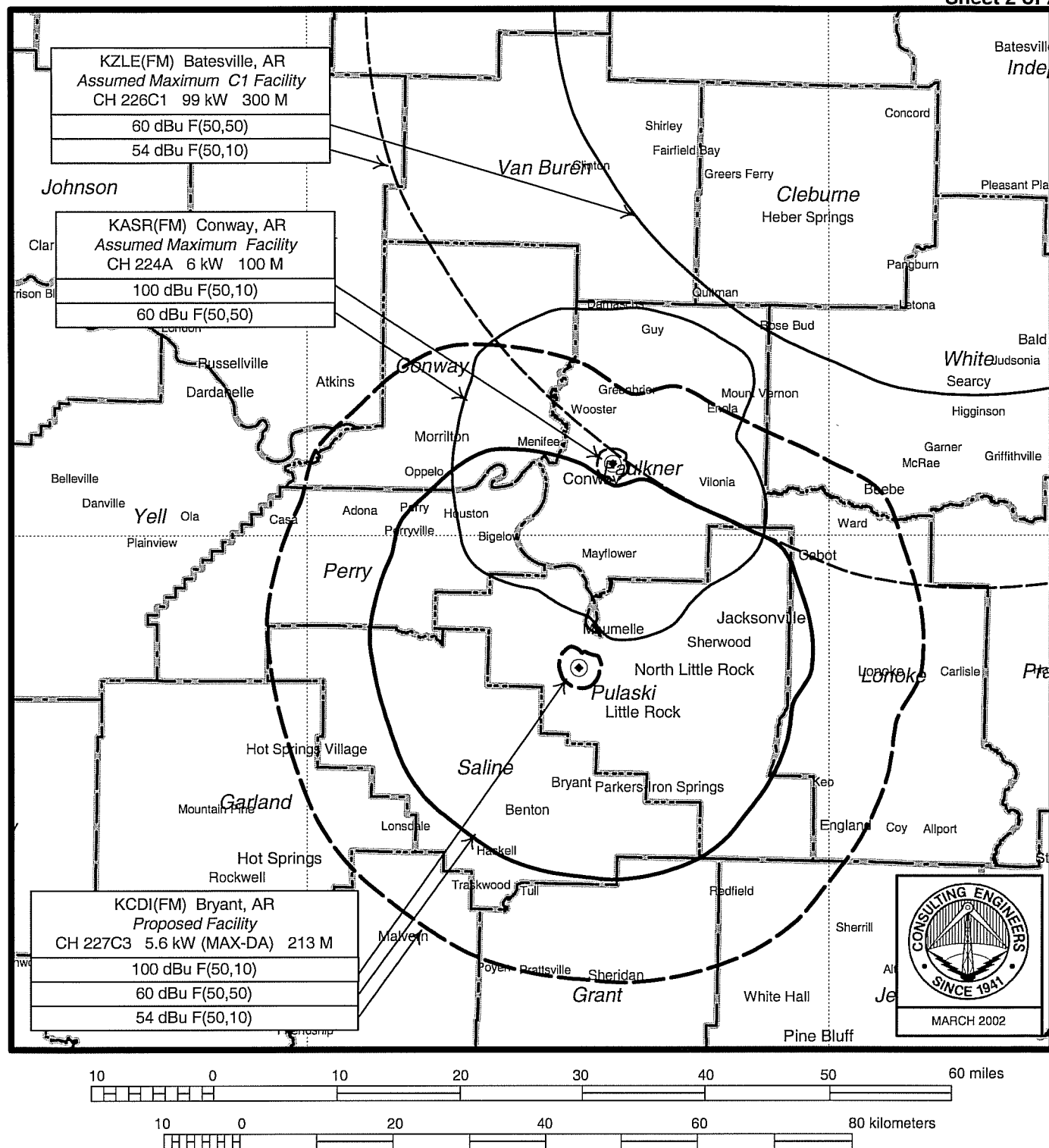
du Treil, Lundin & Rackley, Inc., Sarasota, Florida

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Channel 227C3 Proposed Site

34° 47' 31" North Latitude  
92° 28' 38" West Longitude

Call Id	City St	File Status Num	Channel Freq	ERP HAAT	DA Id	Latitude Longitude	73 215	Bear	Dist. (km)	Req. min
KASR 14465	CONWAY AR LIC C	BMLH 19900111KF	224A 92.7	3.4 86	N	35-06-46 092-24-42	N	9.5	36.09	42.0
<i>[Section 73.215 processing requested toward KASR(FM)]</i>										
KVRE 8150	HOT SPRINGS AR LIC C	BMLH 19950615KA	225A 92.9	6 100	N	34-38-59 093-03-33	N	253.6	55.59	42.0
KVRE 8150	HOT SPRINGS AR CP C	BMPH 20011002ABX	225C3 92.9	25 100	Y 41289	34-38-34 093-04-08	Y	253.1	56.67	43.0
KZLE 72262	BATESVILLE AR LIC C	BLH 19970905KB	226C 93.1	100 300	N	35-53-29 091-43-32	N	28.9	139.81	176.0
<i>[Proposed in contingent application to downgrade KZLE(FM) from Class C to Class C1. See next record.]</i>										
KZLE 72262	BATESVILLE AR APP	BLH 93.1	226C1 93.1	100 300	N	35-53-29 091-43-32	N	28.9	139.81	144.0
<i>[Section 73.215 processing requested toward KZLE(FM) as a Class C1.]</i>										
KCDI 39751	BRYANT AR LIC C	BLH 20000626AAA	227A 93.3	6 100		34-30-27 092-32-48	N	191.4	32.19	
<i>[Applicant's existing Class A authorized facility.]</i>										
KAGL 48949	EL DORADO AR LIC C	BLH 20010809AAO	227C3 93.3	8 113	N	33-16-16 092-39-17	N	185.6	169.48	153.0
KIGL 35014	SELIGMAN MO LIC C	BLH 19940601KB	227C1 93.3	100 150	N	36-28-03 094-10-25	N	321.0	241.19	211.0
PADD	AMITY AR ADD C	RM KS203	228A 93.5			34-15-14 093-27-02		236.4	107.47	89.0

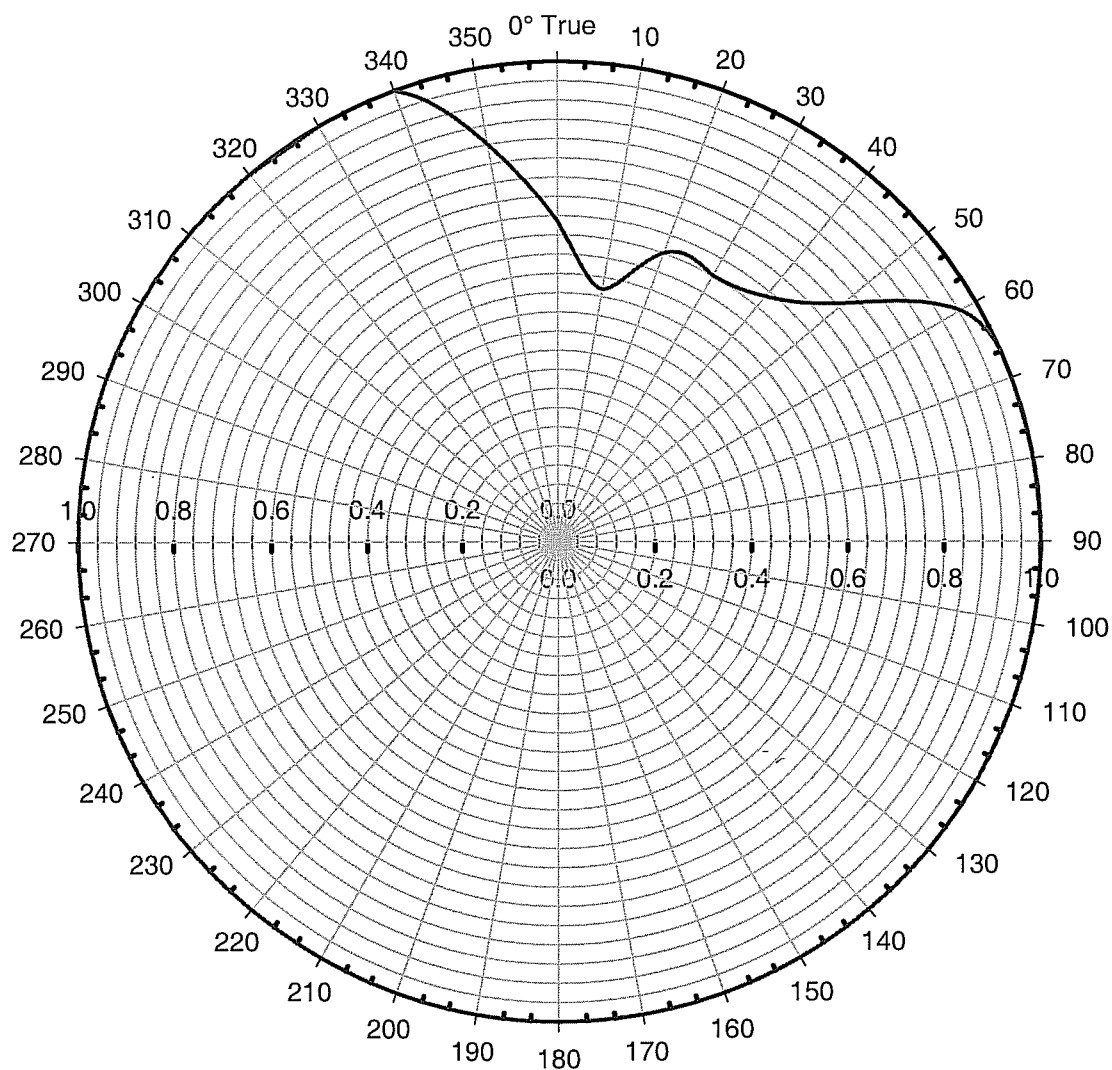


## SECTION 73.215 ALLOCATION STUDY

RADIO STATION KCDI(FM)  
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## **HORIZONTAL PLANE RELATIVE FIELD PATTERN**

RADIO STATION KCDI(FM)  
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