ENGINEERING EXHIBIT

Application for
License to Cover

prepared for

Eternal Family Network

KEFN-CA St. Louis, Missouri
Facility ID 9375
Ch. 28 50 kW

Table of Contents

This material supplies a "hard copy" of the engineering portions of this application as entered November 28, 2005 for filing electronically. Since the FCC's electronic filing system may be accessed by anyone with the applicant's name and password, and electronic data may otherwise be altered in an unauthorized fashion, we cannot be responsible for changes made subsequent to our entry of this data and related attachments.

Section III - Engineering

TECHNICAL SPECIFICATIONS
Ensure that the specifications below are accurate. All items must be completed. The response "on file" is not acceptable.
NOTE: In addition to the information called for in this section, an explanatory exhibit providing full particulars must be submitted for each question for which a "No" response is provided

TECH BOX

1.	Channel: 28			
2.	Frequency Offset (analog stations): ○ No offset ◉ Zero offset ○ Plus offset ○ Minus offset			
3.	Antenna Location Coordinates: (NAD 27) Latitude: Degrees 38 Minutes 25 Seconds 1 ◉ North ○ South Longitude: Degrees 90 Minutes 25 Seconds 59 ◉ West ○ East			
4.	Operating Constants:			
	Transmitter power output (after vestigal sideband filter, if used, and after multiplexer, if combined) 2.76 dBk 1.89 kW		Multiplexer loss in dB, if separate 0 dB	Input to transmission line 2.76 dBk
	Transmission line power loss 2.47 dB	Antenna Input power 0.29 dBk	Maximum antenna power gain 16.7 dB	Maximum effective radiated power 16.99 dBk 50kW
5.	Antenna Data: Manufacturer: COE Model CO-4U/8			
6.	Height of radiation center above mean sea level: 377 meters			

CERTIFICATIONS
Part A: For LPTV licensees seeking to convert their licensed or authorized construction permit facilities to Class A status or to cover a displacement application for construction permit for Class A facilities.

1.	**Interference**. The facility authorized in the license or construction permit or proposed in the construction permit application, complies with the following applicable interference protection rule sections.	
	Analog TV broadcast station protection. See 47 C.F.R. Section 73.6011.	○ Yes ○ No See Explanation in [Exhibit 9]
	Digital TV station and DTV Table of Allotments protection. See 47 C.F.R. Section 73.6013.	○ Yes ○ No See Explanation in [Exhibit 10]
	Low Power TV, TV translator, Class A, and Digital Class A station protection. See 47 C.F.R. Sections 73.6012 and 73.6014.	○ Yes ○ No See Explanation in [Exhibit 11]
	Land mobile station protection. See 47 C.F.R. Section 73.6020.	○ Yes ○ No See Explanation in [Exhibit 12]
2.	**Changed Circumstances.** Apart from changes already reported, no cause or circumstance has arisen since the grant of the underlying LPTV construction permit which would result in any statement or representation contained in the construction permit application to be now incorrect.	○ Yes ○ No See Explanation in [Exhibit 13]
Part B: For Class A licensees seeking a license to cover their authorized Class A construction permit facilities.		
1.	**Constructed Facility**. The facility was constructed as authorized in the underlying construction permit.	○ Yes ◉ No See Explanation in [Exhibit 14]

2.	**Special Operating Conditions.** The facility was constructed in compliance with all special operating conditions, terms, and obligations described in the construction permit.	(•) Yes ( ) No See Explanation in [Exhibit 15]
	An exhibit may be required. Review the underlying construction permit.	[Exhibit 16]
3.	**Changed Circumstances.** Apart from changes already reported, no cause or circumstance has arisen since the grant of the underlying Class A construction permit which would result in any statement or representation contained in the construction permit application to be now incorrect.	(•) Yes ( ) No See Explanation in [Exhibit 17]

PREPARER'S CERTIFICATION

I certify that I have prepared Section III (Engineering Data) on behalf of the applicant, and that after such preparation, I have examined and found it to be accurate and true to the best of my knowledge and belief.

Name ROBERT J. CLINTON		Relationship to Applicant (e.g., Consulting Engineer) CONSULTANT
Signature		Date 11/28/2005
Mailing Address CAVELL, MERTZ & DAVIS, INC. 7839 ASHTON AVENUE		
City MANASSAS	State or Country (if foreign address) VA	Zip Code 20109-2883
Telephone Number (include area code) 7033929090	E-Mail Address (if available) BCLINTON@CMDCONSULTING.COM	

WILLFUL FALSE STATEMENTS ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT (U.S. CODE, TITLE 47, SECTION 312(a)(1)), AND/OR FORFEITURE (U.S. CODE, TITLE 47, SECTION 503).

Exhibits

Exhibit 14
Description: EXHIBIT 14 - STATEMENT A

EXHIBIT 14 - STATEMENT A - ENGINEERING STATEMENT

Attachment 14

Description
EXHIBIT 14 - STATEMENT A

Exhibit 15
Description: EXHIBIT 15 - SPECIAL OPERATING CONDITIONS

SEE EXHIBIT 14 - STATEMENT A FOR SPECIAL OPERATING CONDITIONS DISCUSSION.

Attachment 15

Exhibit 14 - Statement A

ENGINEERING STATEMENT

prepared for

Eternal Family Network

KEFN-CA Facility ID 9375 St. Louis, MO

Introduction

This engineering statement has been prepared on behalf of *Eternal Family Network* ("*Eternal Family*") permittee of Class A television station KEFN-CA, Channel 28, St. Louis, MO, in support of *Eternal Family's* license to cover application for this facility.

KEFN-CA is presently authorized (BPTTL-19980601YF, "CP") to construct a Class A facility on Channel 28 at 50 kW ERP and 377 meters AMSL. The CP facility was constructed, and placed into operation pursuant to automatic program test authority (The facility specified in the prior KEFN-CA license (BLTTL-19921221IB) is no longer in operation).

Special Operating Conditions

As required by special operating condition 1 of the CP, a transmitter with a frequency tolerance of better than plus/minus 1 kHz has been utilized. According to the United States representatives of Itelco, the type acceptance number which covers this transmitter is K4QT654K.

Since the grant of the CP, KEFN-CA was granted a Class A license, which conferred Class A status on the January 2004 CP (BLTTA-20040405ADO). Since Class A stations are accorded primary status, the secondary status condition of the CP no longer applies.

Antenna Description

The CP authorized operation with an Andrew ALP16L2-HSN antenna. A different antenna with similar directional characteristics was ultimately chosen and installed. Specifically, a customized CoEl model CO-4U/8 panel antenna was installed in place of the specified Andrew antenna. Per §73.6025(a) a plot of the relative field horizontal plane pattern (in blue) is provided in **Exhibit 14 - Figure 1** along with a plot of the authorized horizontal plane pattern (in red) to demonstrate that the as-built antenna pattern does not exceed the authorized pattern in any azimuth.

Exhibit 14 - Figure 1A depicts the as-built antenna's horizontal plane pattern in relative field and dBk. A tabulation of the relative field pattern is provided in **Exhibit 14 - Table I**. The resulting coverage contour for KEFN-CA is provided in **Exhibit 14 - Figure 2**.

The KEFN-CA antenna was installed with 2 degrees of mechanical beam tilt, as reflected in the vertical plane elevation patterns presented in **Exhibit 14 - Figure 3** and **3A**.

Environmental Considerations

In keeping with §1.1307(b) of the Commission's Rules, the as-built KEFN-CA operation has been evaluated for human exposure to radiofrequency energy using the procedures outlined in the Commission's OET Bulletin No. 65 ("OET-65"). OET-65 describes a means of determining whether a facility exceeds the RF exposure guidelines adopted in §1.1310. Under present Commission policy, a facility may be presumed to comply with the limits specified in §1.1310 if it satisfies the exposure criteria set forth in OET-65. Based upon that methodology, and as demonstrated in the following, the Channel 28 facility complies with the cited adopted guidelines.

The KEFN-CA transmitting antenna system's center of radiation is 141 meters above ground level. An ERP of 50 kilowatts (10% aural), horizontally polarized, is employed utilizing a CoEl model CO-4U/8 directional antenna. According to data provided by the antenna manufacturer, the maximum relative field value in nearby downward directions (between 15 and 90 degrees below the horizontal) is less than 0.25 on Channel 28. Thus, a conservative value of 25 percent relative field is used for this calculation. The "uncontrolled/general population" limit specified in §1.1310 for Channel 28 is 371.3 $\mu W/cm^2$.

The formula used for calculating NTSC signal density in this analysis is the same as formula (2) in supplement A of OET-65.

$$S = (33.4098) (F^2) (0.4ERP_V + ERP_A) / D^2$$

Where:

S	=	power density in microwatts/cm^2
ERP_V	=	total (average) ERP in Watts (Visual)
ERP_A	=	total (average) ERP in Watts (Aural)
F	=	relative field factor
D	=	distance in meters

Using this formula and the assumptions above, the authorized facility would contribute a power density of 2.7 µW/cm² at two meters above ground level near the antenna support structure, or 0.73 percent of the general population/uncontrolled limit. At ground level locations away from the base of the tower, the calculated RF power density is even lower, due to the increasing distance from the transmitting antenna.

§1.1307(b)(3) states that facilities at locations with multiple transmitters (such as the case at hand) are categorically excluded from responsibility for taking any corrective action in the areas where their contribution is less than five percent. Since the instant situation meets the five percent exclusion test at all ground level areas individually for KEFN-CA, the impact of any other facilities near this site may be considered independently from these facilities. Accordingly, it is believed that the impact of the KEFN-CA operation should not be considered to be a factor at or near ground level as defined under §1.1307(b).

Safety of Tower Workers and the General Public

As demonstrated herein, excessive levels of RF energy attributable to KEFN-CA are not caused at publicly accessible areas at ground level near the antenna supporting structure. Consequently, members of the general public are not exposed to RF levels in excess of the Commission's guidelines. Nevertheless, tower access will continue to be restricted and controlled through the use of a locked fence. Additionally, appropriate RF exposure warning signs will continue to be posted.

With respect to worker safety, it is believed that based on the preceding analysis, excessive exposure does not occur in areas at ground level. A site exposure policy will continue to be employed to protect maintenance workers from excessive exposure when work must be performed on the tower in areas where high RF levels may be present. Such protective measures may include, but will not be limited to, restriction of access to areas where levels in excess of the guidelines may be expected, power reduction, or the complete shutdown of facilities when work or inspections must be performed in areas where the exposure guidelines will be exceeded. On-site RF exposure measurements may also be undertaken to establish the bounds of safe working areas. The applicant will coordinate exposure procedures with any pertinent stations.

Based on the preceding, it is believed that the operation of KEFN-CA on Channel 28 is in compliance with 1.1307(b) of the Rules. Hence preparation of an Environmental Assessment is not required.

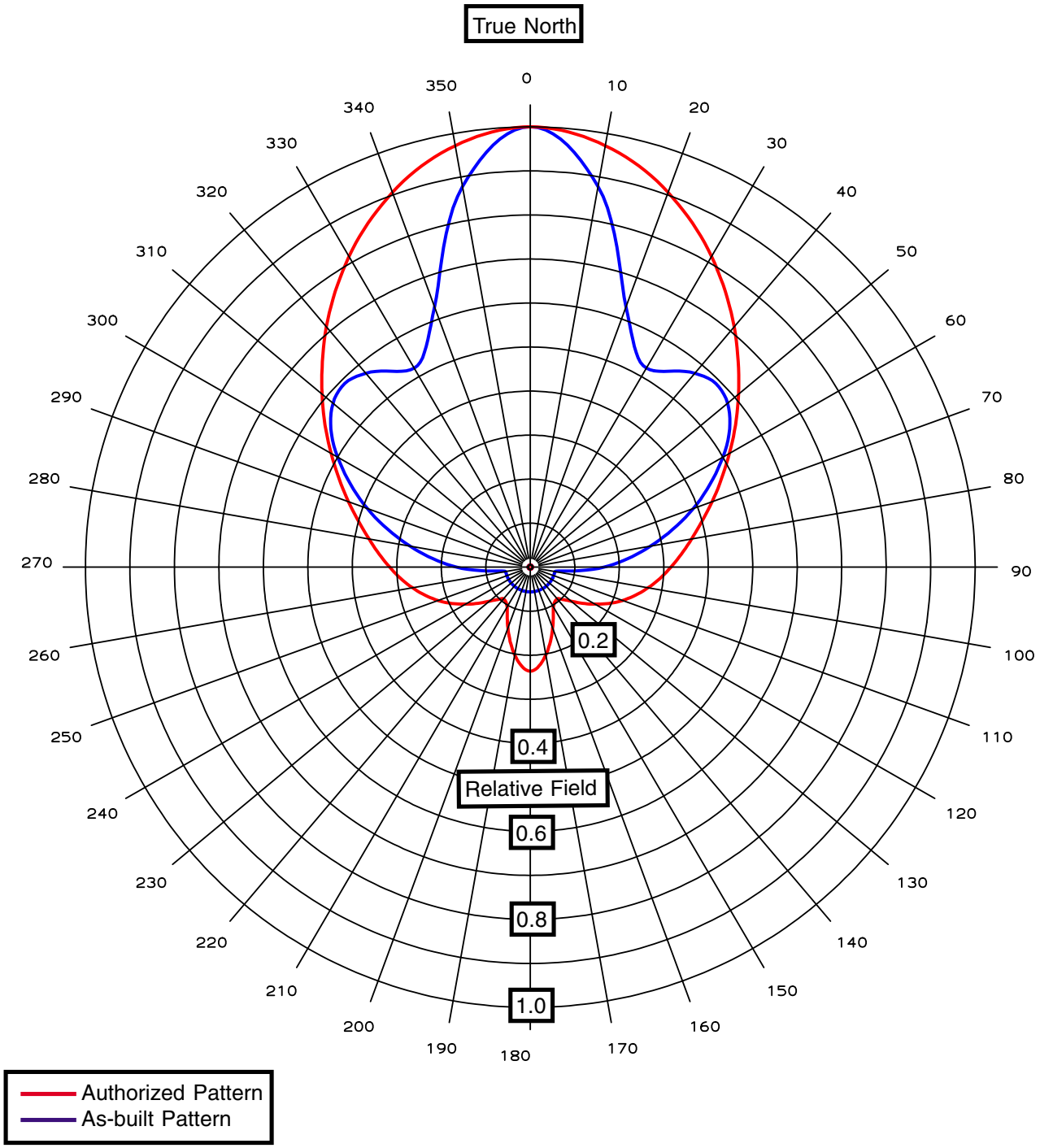

EXHIBIT 14 - FIGURE 1
ANTENNA HORIZONTAL PLANE
RADIATION PATTERN COMPARISON

prepared November 2005 for
Eternal Family Network
KEFN-CA St. Louis, Missouri
Facility ID 9375
Ch. 28 50 kW

Cavell, Mertz & Davis, Inc.
Manassas, Virginia

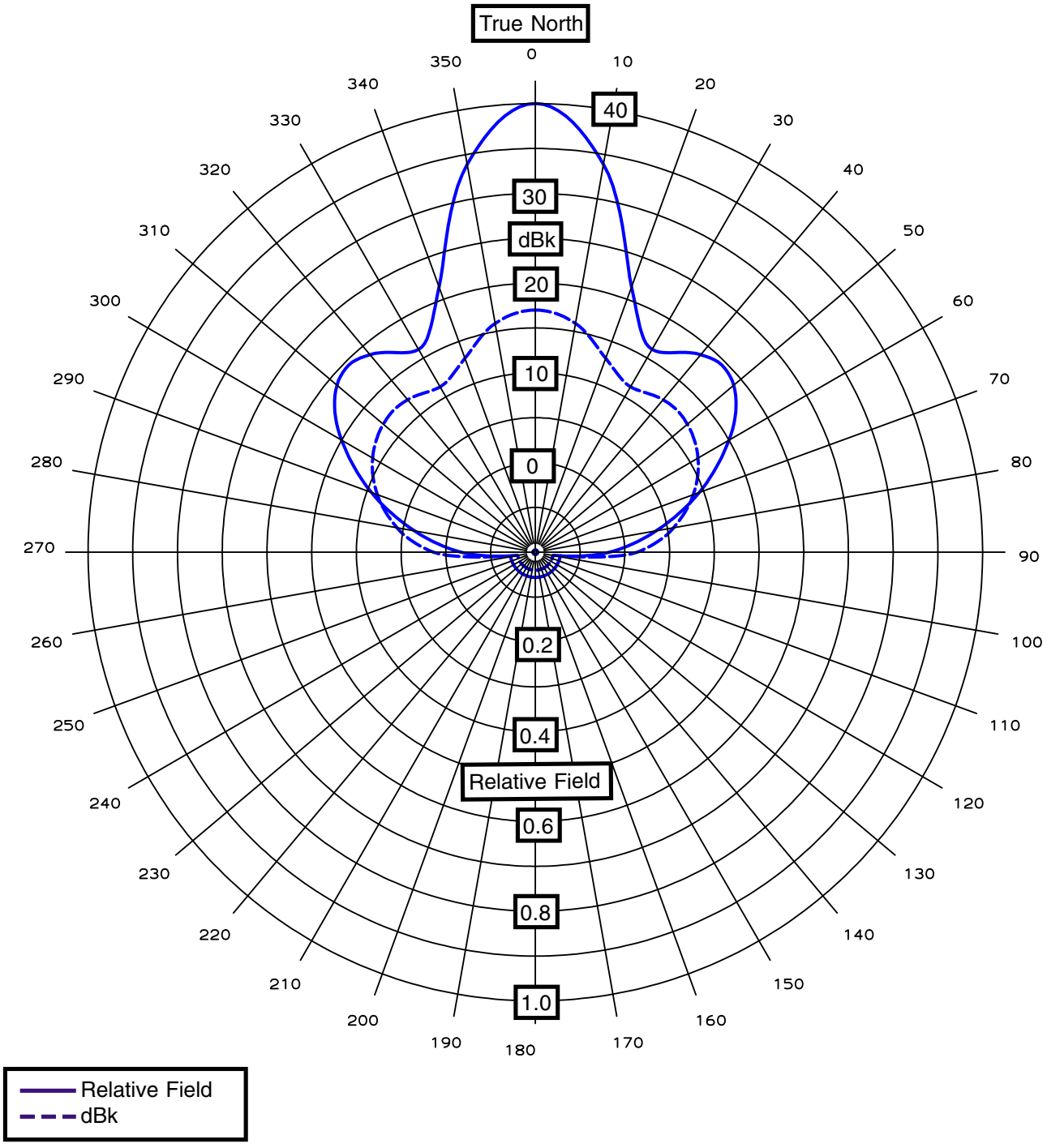

EXHIBIT 14 - FIGURE 1A
ANTENNA HORIZONTAL PLANE
RADIATION PATTERN

prepared November 2005 for
Eternal Family Network
KEFN-CA St. Louis, Missouri
Facility ID 9375
Ch. 28 50 kW

Cavell, Mertz & Davis, Inc.
Manassas, Virginia

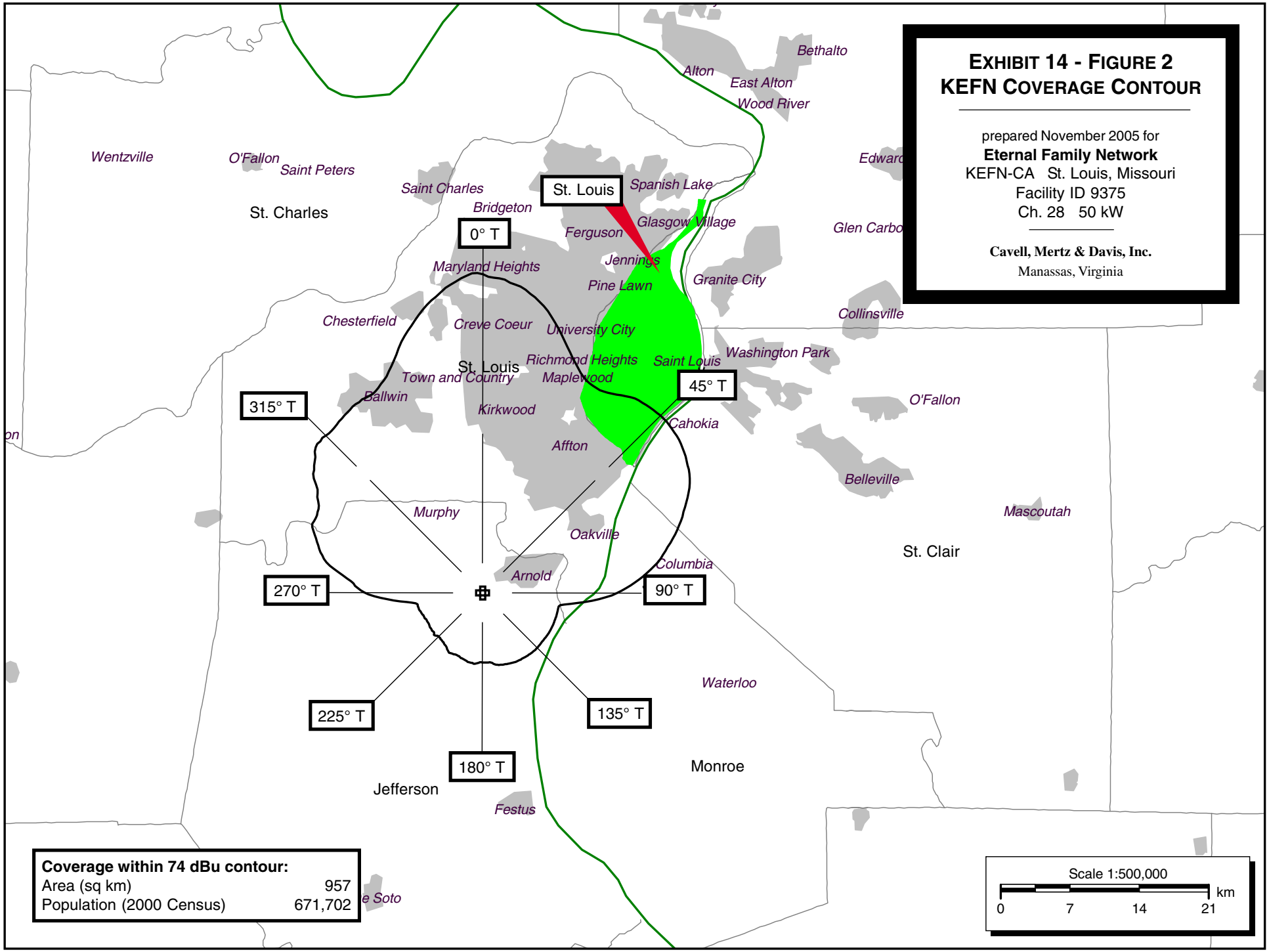
EXHIBIT 14 - FIGURE 2
KEFN COVERAGE CONTOUR
prepared November 2005 for
Eternal Family Network
KEFN-CA St. Louis, Missouri
Facility ID 9375
Ch. 28 50 kW
Cavell, Mertz & Davis, Inc.
Manassas, Virginia
St. Louis
0° T
45° T
90° T
135° T
180° T
225° T
270° T
315° T
Bethalto
Alton
East Alton
Wood River
Wentzville
O'Fallon
Saint Peters
Saint Charles
St. Charles
Bridgeton
Spanish Lake
Glasgow Village
Ferguson
Jennings
Maryland Heights
Pine Lawn
Granite City
Glen Carbo
Collinsville
Chesterfield
Creve Coeur
University City
Richmond Heights
Saint Louis
Washington Park
Town and Country
Maplewood
Ballwin
Kirkwood
Cahokia
Affton
Belleville
O'Fallon
Murphy
Oakville
Mascoutah
St. Clair
Columbia
Arnold
Waterloo
Monroe
Jefferson
Festus
Coverage within 74 dBu contour:
Area (sq km) 957
Population (2000 Census) 671,702
Scale 1:500,000
km
0
7
14
21

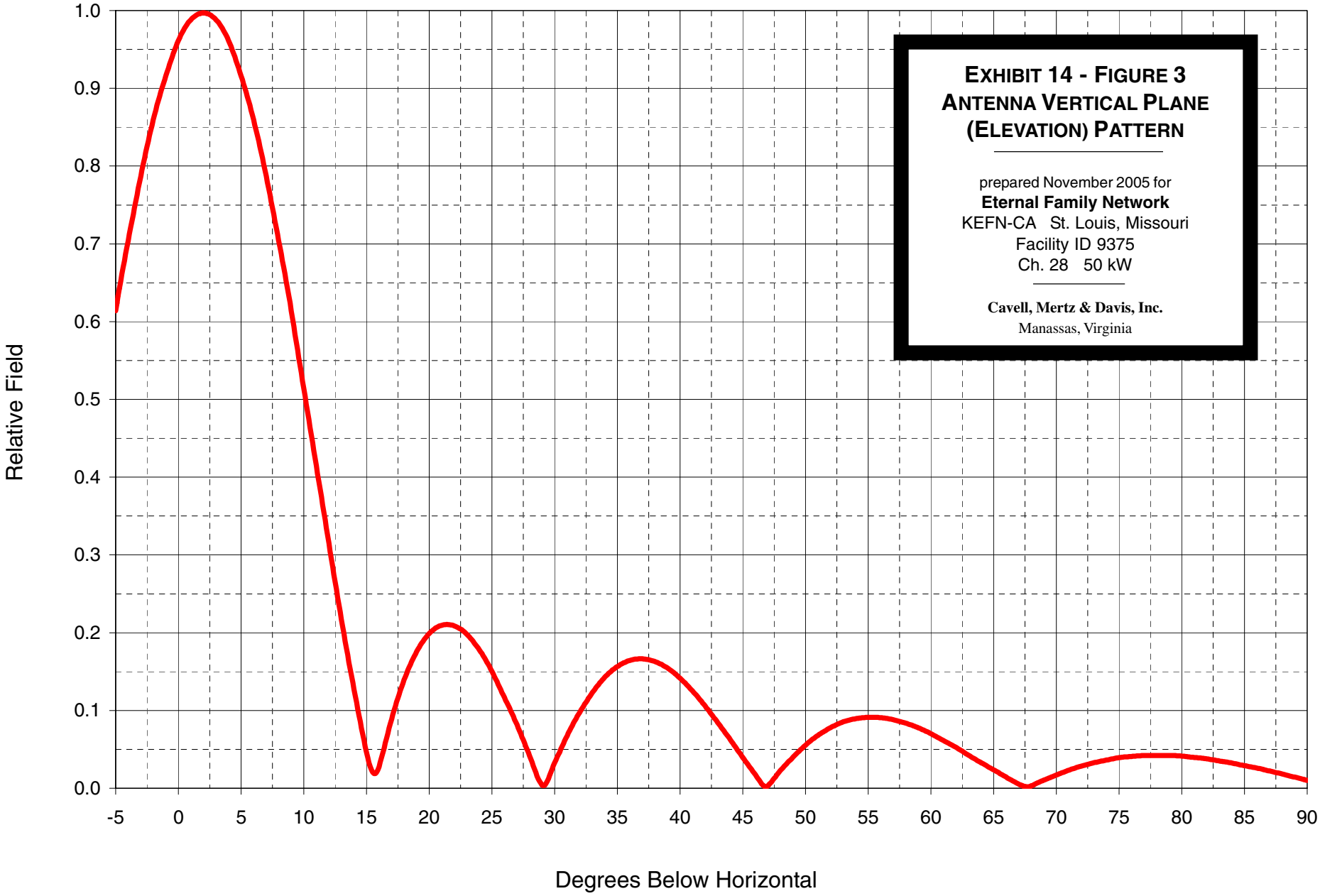
EXHIBIT 14 - FIGURE 3
ANTENNA VERTICAL PLANE
(ELEVATION) PATTERN
prepared November 2005 for
Eternal Family Network
KEFN-CA St. Louis, Missouri
Facility ID 9375
Ch. 28 50 kW
Cavell, Mertz & Davis, Inc.
Manassas, Virginia
Relative Field
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
-5
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
Degrees Below Horizontal

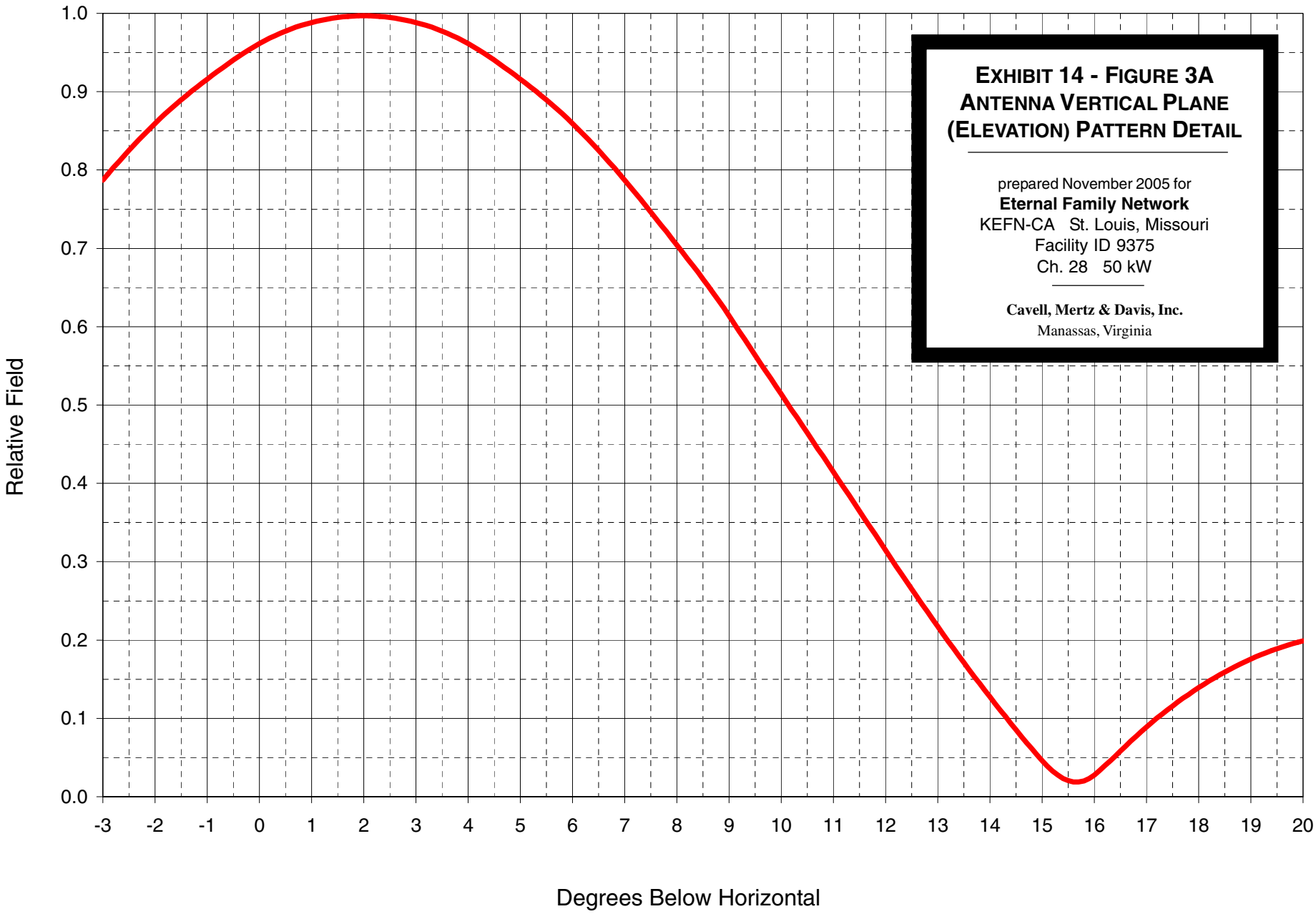
EXHIBIT 14 - FIGURE 3A
ANTENNA VERTICAL PLANE
(ELEVATION) PATTERN DETAIL
prepared November 2005 for
Eternal Family Network
KEFN-CA St. Louis, Missouri
Facility ID 9375
Ch. 28 50 kW
Cavell, Mertz & Davis, Inc.
Manassas, Virginia
Relative Field
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
-3 -2 -1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Degrees Below Horizontal