

APPLICATION FOR MINOR
MODIFICATION TO A LICENSED
TELEVISION BROADCAST STATION
FCC FILE NO.: BLCDT-20050909AAM
WABI-TV
COMMUNITY BROADCASTING SERVICE
BANGOR, MAINE

KESSLER & GEHMAN ASSOCIATES, INC.
TELECOMMUNICATIONS CONSULTING ENGINEERS

20100208

Prepared by Ryan Wilhour

KG&A

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KESSLER AND GEHMAN ASSOCIATES, INC.

ENGINEERING STATEMENT OF RYAN WILHOUR OF THE FIRM KESSLER AND
GEHMAN ASSOCIATES, INC., CONSULTING ENGINEERS IN CONNECTION WITH
AN APPLICATION FOR MINOR MODIFICATION TO A LICENSED TELEVISION
BROADCAST STATION
FCC FILE NUMBER BLCDT-20050909AAM
WABI-TV
COMMUNITY BROADCASTING SERVICE
BANGOR, MAINE

This firm has been employed by Community Broadcasting Service “CBS” to prepare engineering studies and a minor channel change modification application to FCC file number BLCDT-20050909AAM in response to a Report and Order in the matter of “Amendment of Section 73.622(i), Final DTV Table of Allotments, Television Broadcast Stations. (Bangor, Maine)” MM Docket No. 09-122 RM-11544 adopted December 31, 2009 and released January 4, 2010.

The following technical modifications are proposed relative to the above referenced license:

- Substitute channel 13 for channel 19.
- Decrease the horizontally polarized ERP from 363kW to 12kW.
- Add circular polarization.
- Substitute the broadcast antenna from a Dielectric TFU-30GTH-R 06 to a Dielectric THV-9A13/CP-R 04.
- Move the transmitter site from ASR Number 1225781 to ASR Number 1035339 (a distance of approximately 50 feet)
- Decrease effective antenna height by 0.6 meter AMSL.
- Decrease the overall structure height of ASR Number 1035339 by 6.2 meters¹.

No other changes are proposed.

ATTACHED FIGURES

In carrying out the engineering studies the following attached figures were prepared:

1. Engineering specifications (Exhibit E1)
2. Elevation drawing of the antenna system (Exhibit E2)
3. Antenna elevation patterns (Exhibit E3)

¹ FAA notification of reduced height will be submitted concurrently with the instant application.

4. USGS 7.5 minute topographic quadrangle showing the proposed transmitter location and the coordinate lines (Exhibit E4)
5. Map showing the predicted DTV coverage contour (Exhibit E5)
6. Environmental Impact/ RFR Hazard Analysis (Exhibit E6)

ALLOCATION ANALYSIS

An allocation analysis has not been prepared for the instant application. The transmitter site is located less than two latitudinal seconds from the allocated site and the effective antenna height is 11 meters lower. As proposed, the parameters do not exceed the amended table of allotment specifications, and the site deviation complies with the 3 second coordinate correction tolerance for a simple license modification pursuant to section 73.1690(b)(2) and thus is considered an insignificant change.

Exhibit E5 demonstrates the allotted and proposed contours in green and red respectively. As illustrated the proposed red contour does not encroach beyond the green contour for any azimuth direction. As per FCC Form 301 Section III-D question 1(e) the proposed facility will operate at post-transition facilities that are reduced by no more than five percent with respect to the predicted population in the table of allotments.

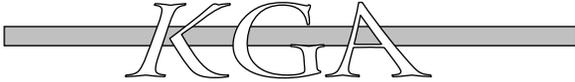
ENVIRONMENTAL IMPACT/RFR HAZARD ANALYSIS

An analysis has been made of the human exposure to RFR using the calculation methodology described in OET Bulletin 65, Edition, 97-01. Exhibit E6 is a RFR study demonstrating compliance within 5% of the most restrictive permissible exposure at any location 2 meters above the ground. Exhibit E6 calculations were made using a frequency of 210 MHz, which is the lower edge of the proposed channel. To account for ground reflections, a coefficient of 1.6 was included in the calculations.

Pursuant to OET Bulletin 65 concerning multiple-user transmitter sites only those licenses whose transmitters produce power density levels greater than 5.0% of the exposure limit are considered significant contributors to RFR. Since the proposed operation is well within 5% of the most permissible exposure at any location 2 meters above the ground, it is not considered a significant contributor to RFR exposure. Thus, contributions to exposure from other RF sources in the vicinity of WABI-TV were not taken into account. The instant proposal complies with the FCC limits for human exposure to RF radiation and thus is excluded from further environmental processing.

DECLARATION OF ENGINEER

The foregoing statement and the report regarding the aforementioned engineering work are true and correct to the best of my knowledge. Executed on February 8, 2010.



Ryan Wilhour

A handwritten signature in blue ink that reads 'Ryan Wilhour'. The signature is written in a cursive, flowing style.

Consulting Engineer

ENGINEERING SPECIFICATIONS

A. Transmitter Site (NAD 27):

N. Latitude: 44° 42' 11.7"

W. Longitude: 69° 04' 46.8"

FCC Tower Registration Number:

1035339

B. Proposed Facility:

Digital Channel: 13

Frequency: 210 - 216 MHz

C. Antenna and Other Elevations:

Height of Site Above Mean Sea Level (AMSL) 359.7 m

Overall Height of Structure Above Ground 154.7 m

(including all appurtenances)

Overall Height of Structure Above Mean Sea Level 514.4 m

(including all appurtenances)

Average Terrain 114.6 m

Effective Height of Antenna Above Ground 146.3 m

Effective Height of Antenna Above Average Terrain 391.4 m

Effective Height of Antenna Above Mean Sea Level 506.0 m

D. Antenna Parameters – Circular Polarization:

Antenna Make Dielectric

Antenna Model THV-9A13/CP-R O4

Maximum Effective Radiated Power (H & V) 10.79 dBkW

In Beam Maximum 12 kW

Maximum Antenna Gain in Beam Maximum 6.53 dBd

Line Loss (470' of 3-1/8" air dielectric 50 Ohm) 0.68 dB

Transmitter Power Output 3.1 kW

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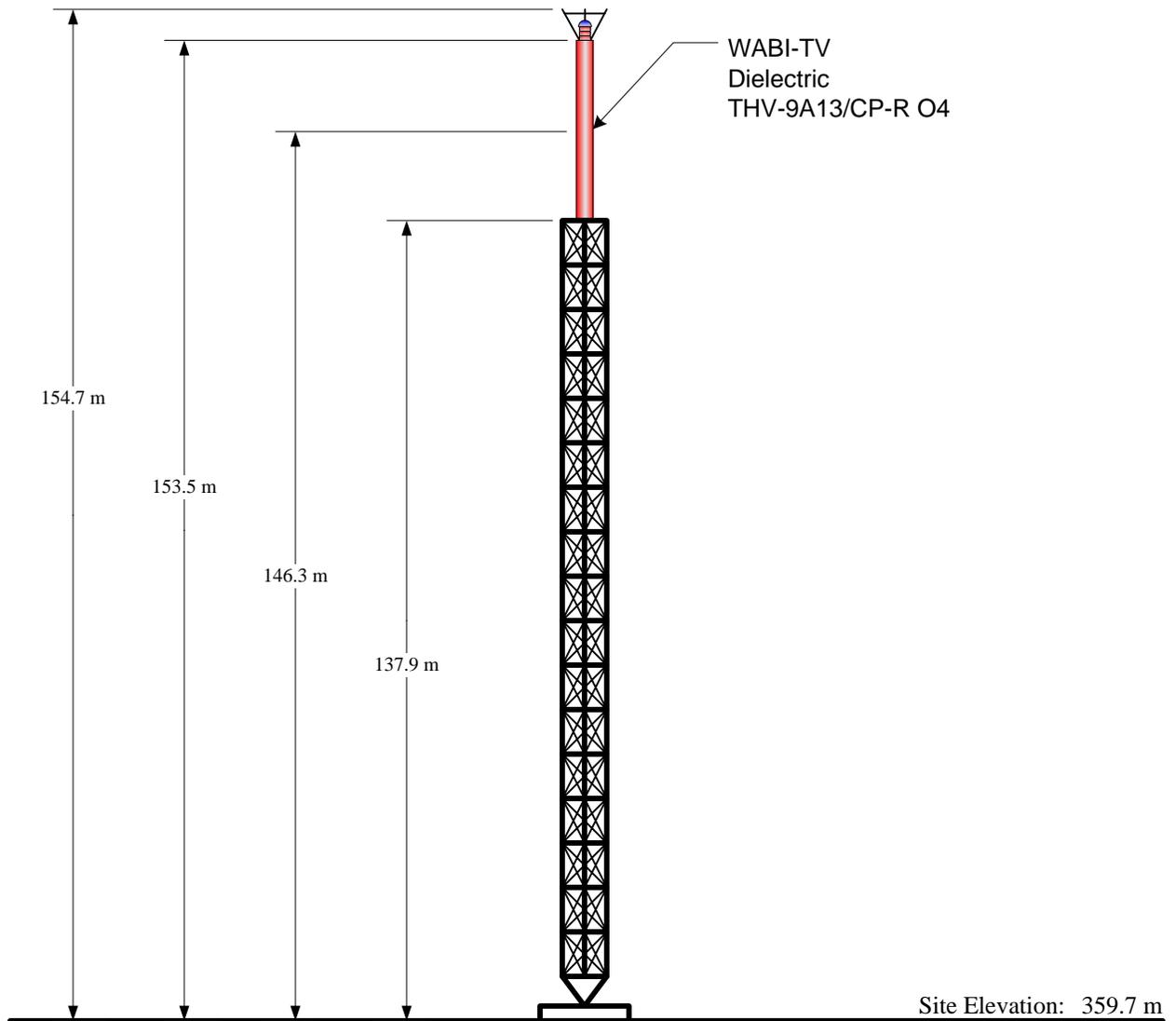
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EXHIBIT E1



Overall Height AMSL:	514.4 m	NAD 27 Coordinates:	
Overall Height AGL:	154.7 m	N. Latitude:	44° 42' 11.7"
Radiation Center AGL:	146.3 m	W. Longitude:	69° 04' 46.8"
Radiation Center AMSL:	506.0 m		
Radiation Center HAAT:	391.4 m		
Average Terrain:	114.6 m	FCC Tower Registration Number:	1035339

NOTE: NOT TO SCALE

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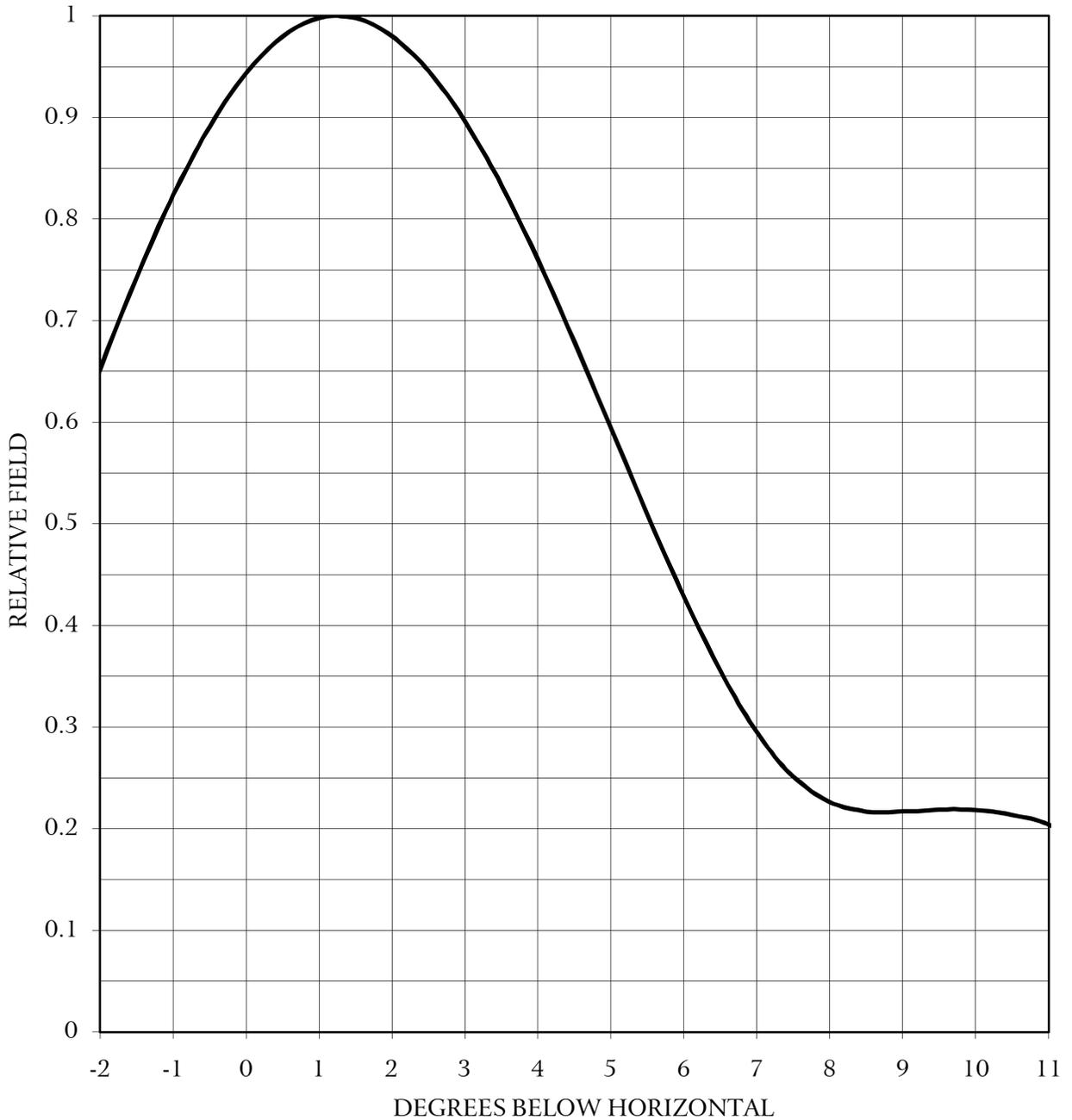
EXHIBIT E2

ELEVATION PATTERN

DIELECTRIC - THV-9A13/CP-R 04

RMS Gain at Main Lobe 9.0 (9.54 dB)
RMS Gain at Horizontal 8.0 (9.03 dB)

Beam Tilt 1.25 deg
Frequency 213.0 MHz



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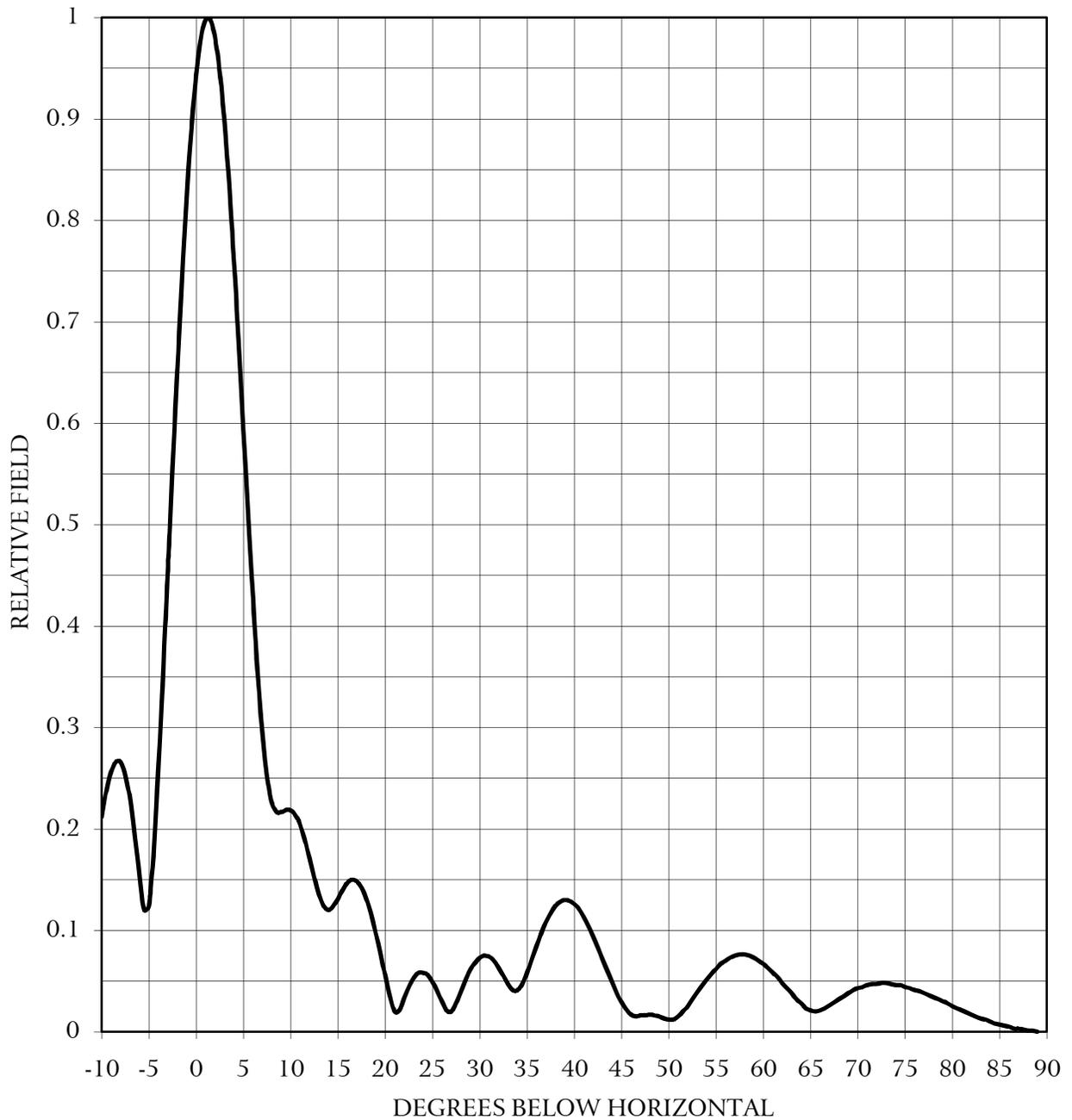
EXHIBIT E3A

ELEVATION PATTERN

DIELECTRIC - THV-9A13/CP-R O4

RMS Gain at Main Lobe 9.0 (9.54 dB)
RMS Gain at Horizontal 8.0 (9.03 dB)

Beam Tilt 1.25 deg
Frequency 213.0 MHz

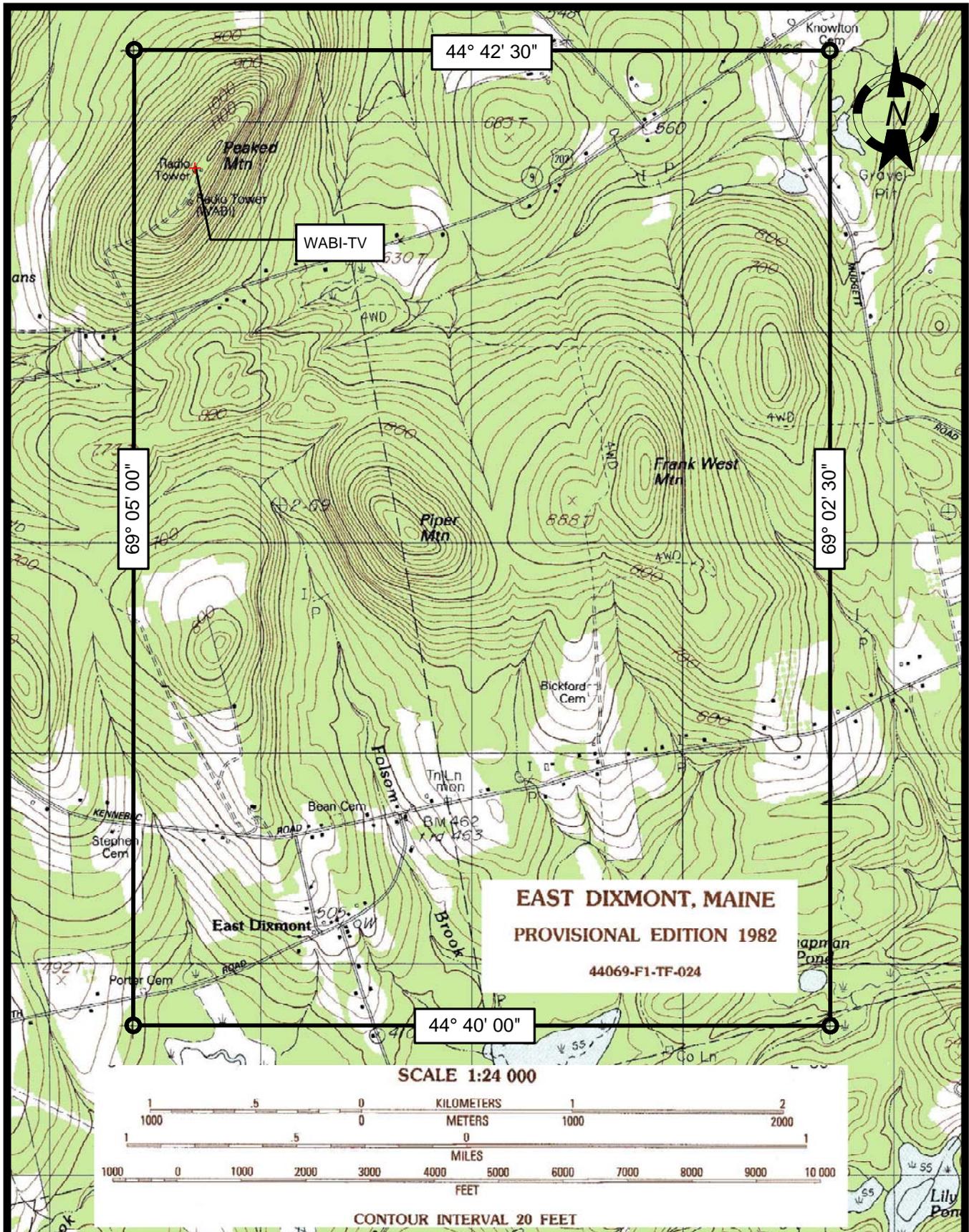


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EXHIBIT E3B



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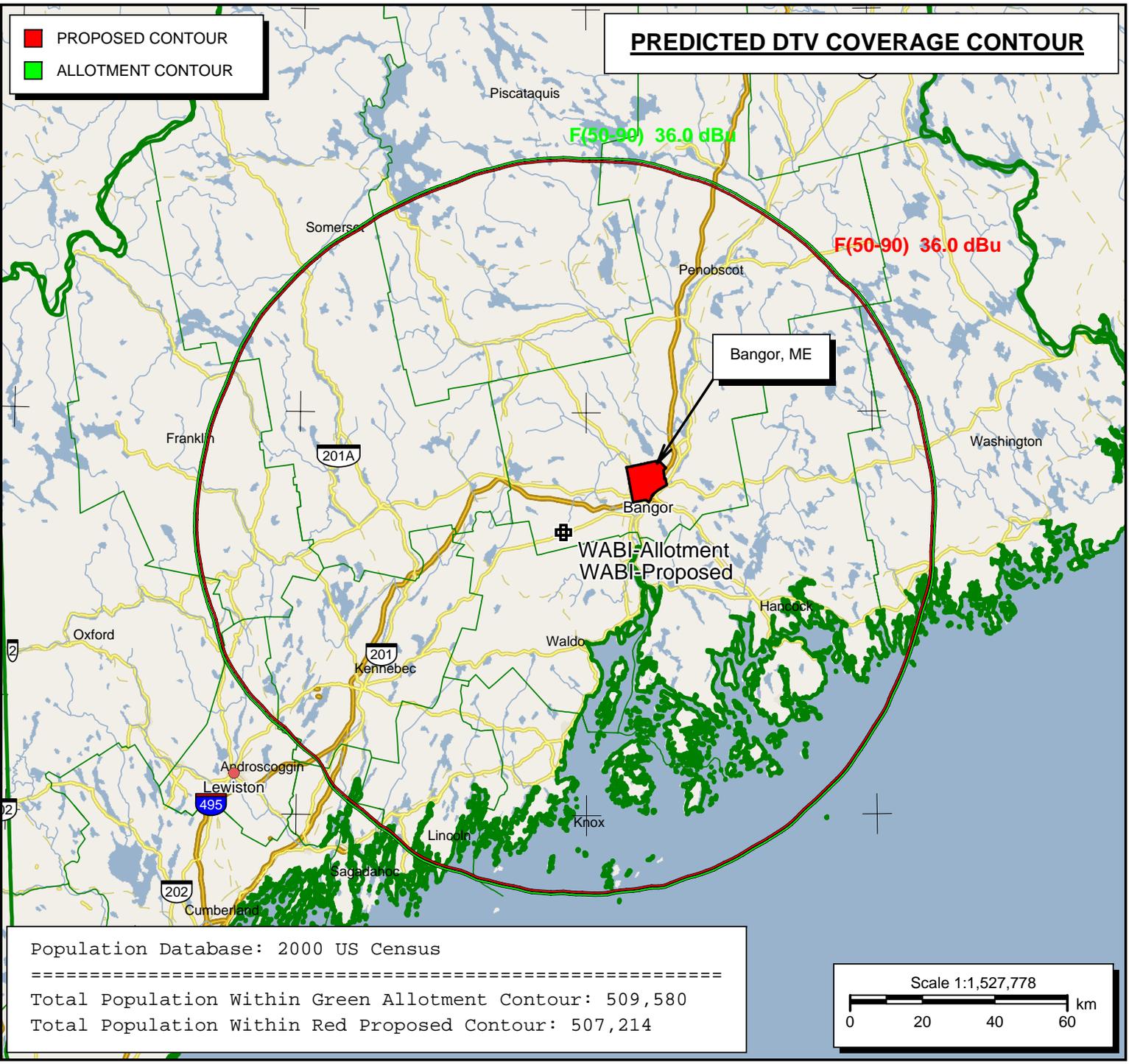
EXHIBIT E4

PREDICTED DTV COVERAGE CONTOUR

■ PROPOSED CONTOUR
■ ALLOTMENT CONTOUR

WABI-Allotment
 BPRM20090603AHF
 Latitude: 44-42-13 N
 Longitude: 069-04-47 W
 ERP: 12.00 kW
 Channel: 13
 Frequency: 213.0 MHz
 AMSL Height: 516.72 m
 Elevation: 298.74 m
 Horiz. Pattern: Omni

WABI-Proposed
 PROPOSED
 Latitude: 44-42-11.70 N
 Longitude: 069-04-46.80 W
 ERP: 12.00 kW
 Channel: 13
 Frequency: 213.0 MHz
 AMSL Height: 506.0 m
 Elevation: 359.7 m
 Horiz. Pattern: Omni



Population Database: 2000 US Census
 =====
 Total Population Within Green Allotment Contour: 509,580
 Total Population Within Red Proposed Contour: 507,214

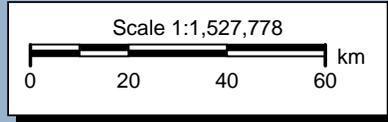
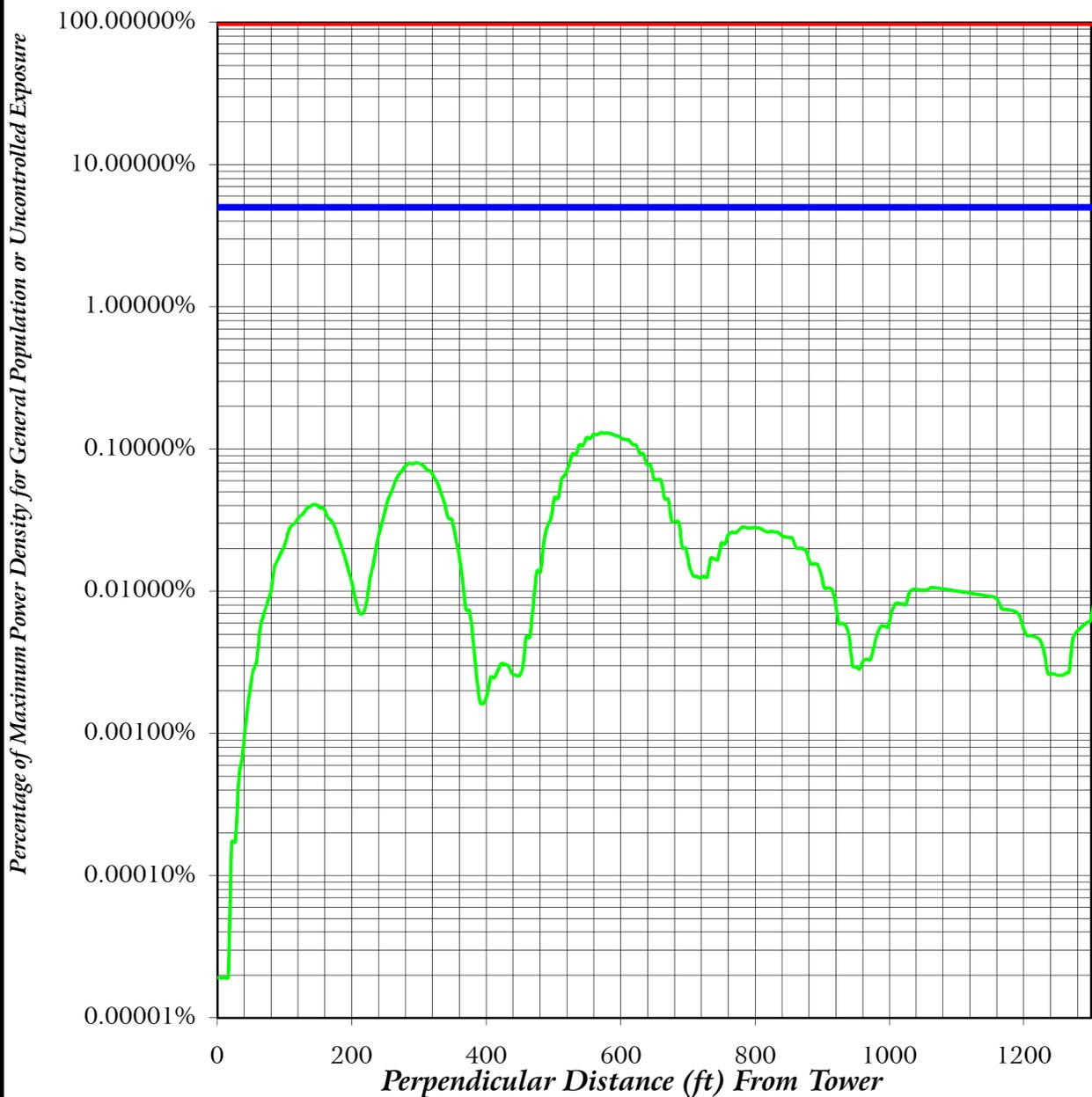


EXHIBIT E5

FAR FIELD EXPOSURE TO RF EMISSIONS



- Maximum Allowable General Population or Uncontrolled Exposure
- 5 % of Maximum General Population or Uncontrolled Exposure
- Percentage of Maximum General Population or Uncontrolled Exposure

METHODOLOGY AND EXPLANATION OF
ENVIRONMENTAL IMPACT / RADIO FREQUENCY RADIATION
HAZARD ANALYSIS

A theoretical analysis has been conducted of the human exposure to radio frequency radiation (“RFR”) using the calculation methodology described in *OET Bulletin 65, Edition 97-01*. The RFR analysis is conducted pursuant to the following methodology:

Terrain¹ extraction is compiled from the proposed tower site to radial lengths of 0.25 miles in 0.001 mile increments for 360 radials. The power density is calculated for each terrain point at 6 feet above ground level using the elevation and azimuth pattern of the proposed broadcast antenna. The power density calculations are conducted using the lower edge of the proposed channel frequency. To account for ground reflections, a coefficient of 1.6 was included in the calculation.

The resulting cylindrical polar analysis is then summarized into a coordinate plane graph using the following methodology:

Starting from the origin the maximum calculated RFR value is determined among the 360 degree radials for each 0.001 mile increment, the value is then converted into a percentage of the maximum allowable general population or uncontrolled exposure and plotted as a function of perpendicular distance from the tower.

¹ Terrain extraction is based upon a 3 arc second point spacing terrain database.