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Central Pennsylvania Christian Institute, Inc.
NCE FM Interference Area to TV 6
Saxton, Pennsylvania

The purpose of this exhibit is to show compliance with §73.525 of the Commission's Rules. The Rules require that an applicant proposing operation on FM Channel 207, whose antenna location is less than 196 kilometers from a Television Channel 6 facility, furnish a map and an engineering statement, with calculations, demonstrating compliance with the Rules with regard to interference to the reception of Television Channel 6. There is one affected TV 6 station.

1. WKBS-TV - 34 km distant

Therefore, WKBS-TV must receive consideration.

First, the relative HAAT figures were generated for WKBS-TV using the NGDC 30 Second Database and the data from the FCC TV Database. The distance to the WKBS-TV contours were predicted according to the procedures specified in §73.684 of the Commission's Rules, "Prediction of Coverage," using the F(50,50) curves in Figure 9 of §73.699.

For each WKBS-TV Television Channel 6 field strength contour, the associated F(50,10) FM interference contour was obtained from Figure 1 of §73.599. The distance to the applicable NCE-FM interference contour was predicted according to the procedures specified in "Prediction of Coverage," using the F(50,10) curves in Figure 1 of §73.333 of the Rules. Radials were then computed every 5 degrees from the proposed NCE-FM site to the point at which interference stops occurring.

A table of the proposed new NCE-FM F(50,10) interfering contour to the WKBS-TV Television Channel 6 F(50,50) protected contour may be seen as Table 1 of this exhibit.

These calculations are based on the appropriate F(50,50), F(50,10) and FM/TV 6 protection ratio curves for an NCE-FM station operating with facilities of 1.5 kilowatts ERP at 30 meters HAAT. Free space calculations were used when computing the field strength for distances less than 1 mile.

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The applicant chooses to use mixed polarity, and adjustments for television receiving antenna directivity have been utilized. As required in §73.525(e)(4)(ii) the permissible ERP is given by the following formula:

$[H + (V/A)]$ is no greater than P

Where: H is the horizontally polarized ERP in kilowatts for mixed polarity;
 V is the vertically polarized ERP in kilowatts for mixed polarity;
 A is 40 dB if the predicted interference area lies entirely outside the limits of a city of 50,000 persons or more, or 10 if it does not; and
 P is the maximum permitted horizontally polarized-only power in kilowatts.

The predicted interference area lies entirely outside the limits of a city of 50,000 or more persons, thus the value of 40 was used for "A".

$$\begin{aligned}\text{ERP} &= [\text{ERPH} + (\text{ERP}_V/40)] \\ &= 95 + (1500/40) \\ &= 0.1325 \text{ kW}\end{aligned}$$

The interfering, 67.25 dB μ , contour was calculated using the maximum permitted horizontally polarized ERP of 0.1325 kilowatts.

A map of the proposed new NCE-FM 67.25 dB μ F(50,10) interfering contours to WKBS-TV Television Channel 6 47.0 dB μ F(50,50) protected contour may be seen as Figure 1 of this exhibit.

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Figure 2 shows the total area receiving interference to the WKBS-TV programming is 138.7 square kilometers within the WKBS-TV protected contour. The total population (2010 Census) receiving interference is 2,985 persons.

Because the population receiving interference is less than 3,000 persons, the application complies with Section 73.525 of the Commission's Rules as pertains to interference to the reception of TV Channel 6 by NCE-FM stations.

Table 1
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TV Contour dB	U/D Ratio dB	FM Contour dB
47.0	20.25	67.25
59.0	7.75	66.75
61.0	6.25	67.25
63.0	5.00	68.00
65.0	4.00	69.00
67.0	2.75	69.75
69.0	2.25	71.25

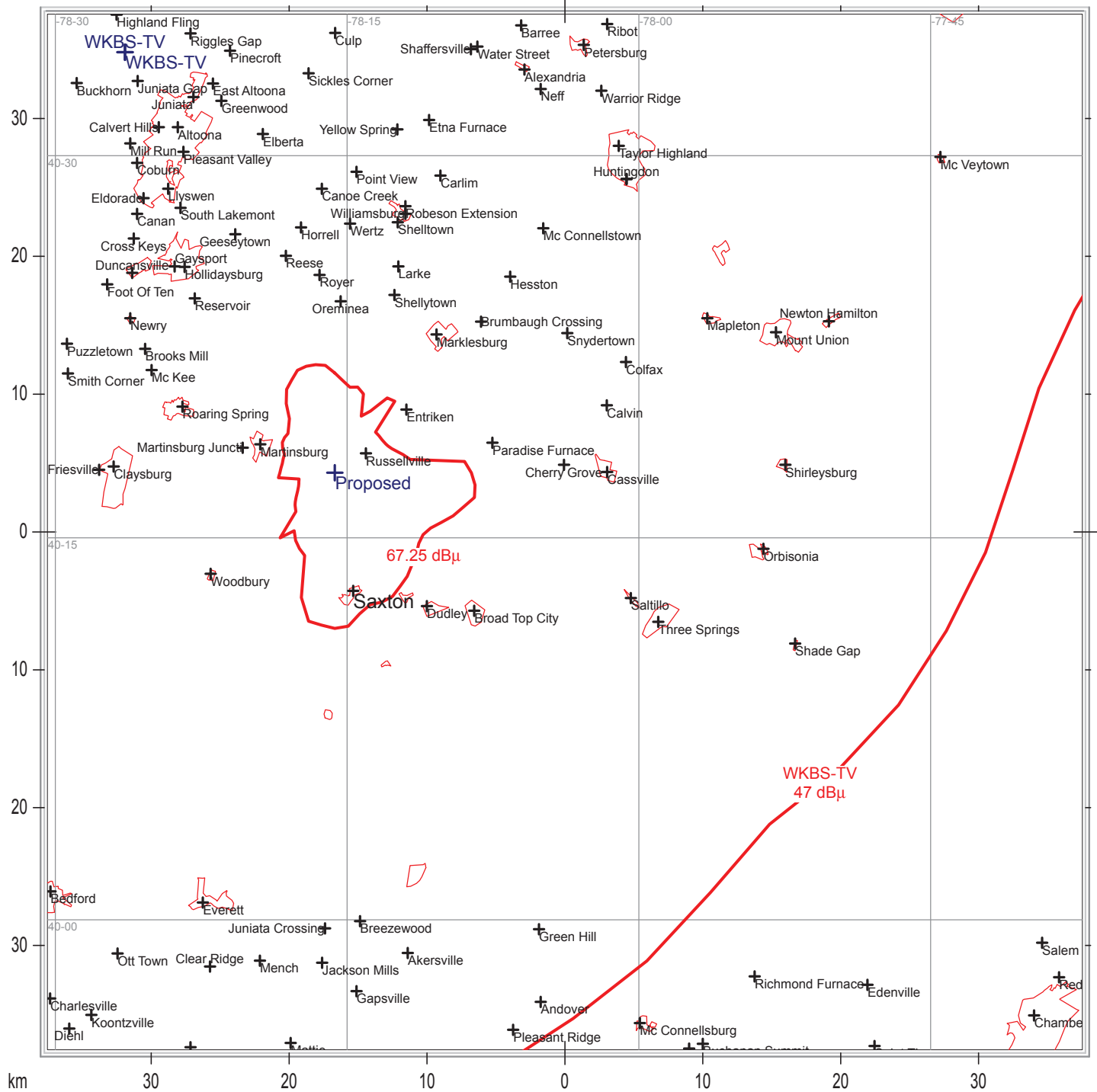


Figure 1
Central Pennsylvania Christian Institute
Interference to WKBS-TV
Saxton, Pennsylvania

State Borders City Borders Lat/Lon Grid

