

ENGINEERING STATEMENT

The engineering data contained herein have been prepared on behalf TRINITY BROADCASTING OF INDIANA, INC., licensee of WKOI-DT, Channel 39 in Richmond, Indiana, in support of its Application for Construction Permit to operate with a maximized post-transition DTV facility.

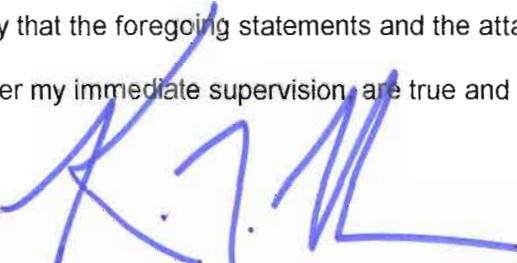
It is proposed to mount the existing Andrew directional antenna at the 289-meter level of the existing 305-meter tower on which the antenna is presently mounted. Exhibit B provides azimuth and elevation pattern data for the licensed antenna. Exhibit C is a map upon which the predicted service contours are plotted. As shown, the city of license is completely contained within the proposed 48 dBu service contour. An interference study is included as Exhibit D. It is important to note that the study incorporated a cell size of 1.0 kilometer and an increment spacing of 0.1 kilometer. A power density calculation is provided in Exhibit E.

It is not expected that the proposed facility would cause objectionable interference to any other broadcast or non-broadcast station authorized to operate at or near the WKOI-DT site. However, if such should occur, the owner of this station recognizes its obligation to take whatever corrective actions are necessary.

Since no change in overall height or location of the existing tower is proposed herein, the FAA has not been notified of this application. In addition, the FCC issued Antenna Structure Registration Number 1012094 to this tower.

EXHIBIT A

I declare under penalty of perjury that the foregoing statements and the attached exhibits, which were prepared by me or under my immediate supervision, are true and correct to the best of my knowledge and belief.



KEVIN T. FISHER

June 4, 2008

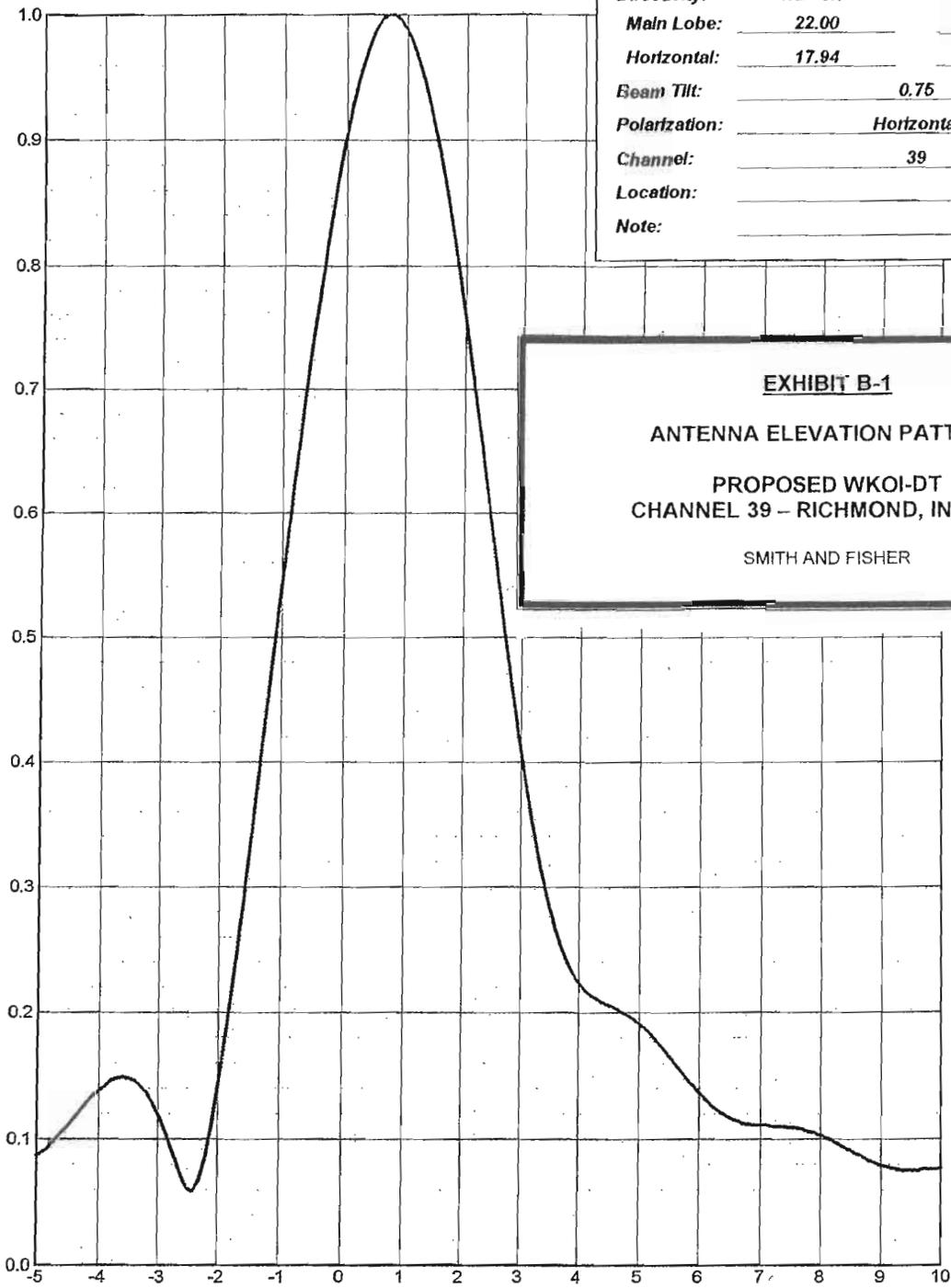


**ANDREW.**

**ELEVATION PATTERN**

Type:	ATW22HS3H	
Directivity:	Numeric	dBd
Main Lobe:	22.00	13.42
Horizontal:	17.94	12.54
Beam Tilt:	0.75	
Polarization:	Horizontal	
Channel:	39	
Location:		
Note:		

Relative Field



**EXHIBIT B-1**

**ANTENNA ELEVATION PATTERN**

**PROPOSED WKOI-DT**

**CHANNEL 39 - RICHMOND, INDIANA**

SMITH AND FISHER



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

**EXHIBIT B-2**

**ANTENNA AZIMUTH PATTERN**

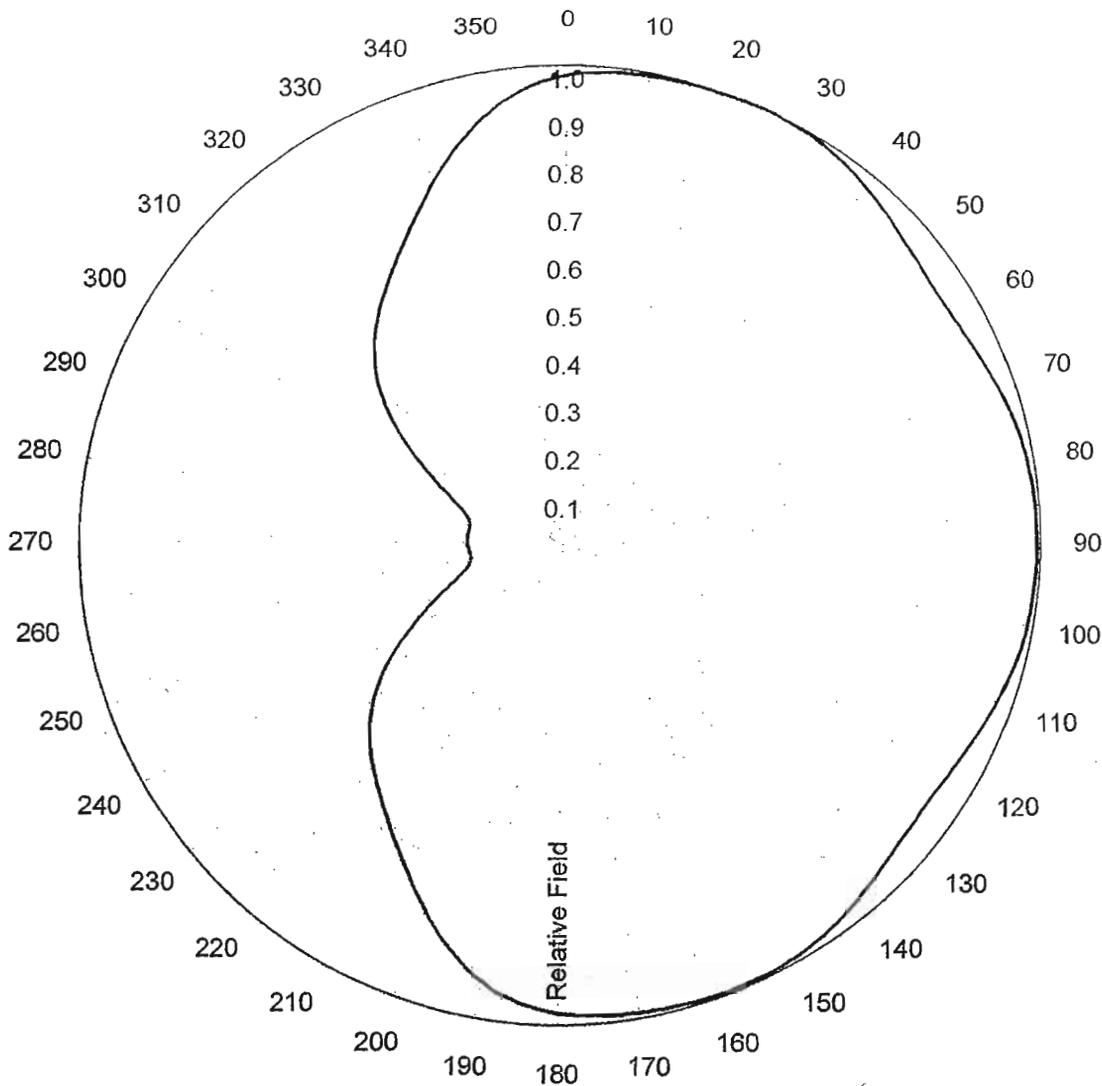
**PROPOSED WKOI-DT  
CHANNEL 39 – RICHMOND, INDIANA**

SMITH AND FISHER



**AZIMUTH PATTERN**

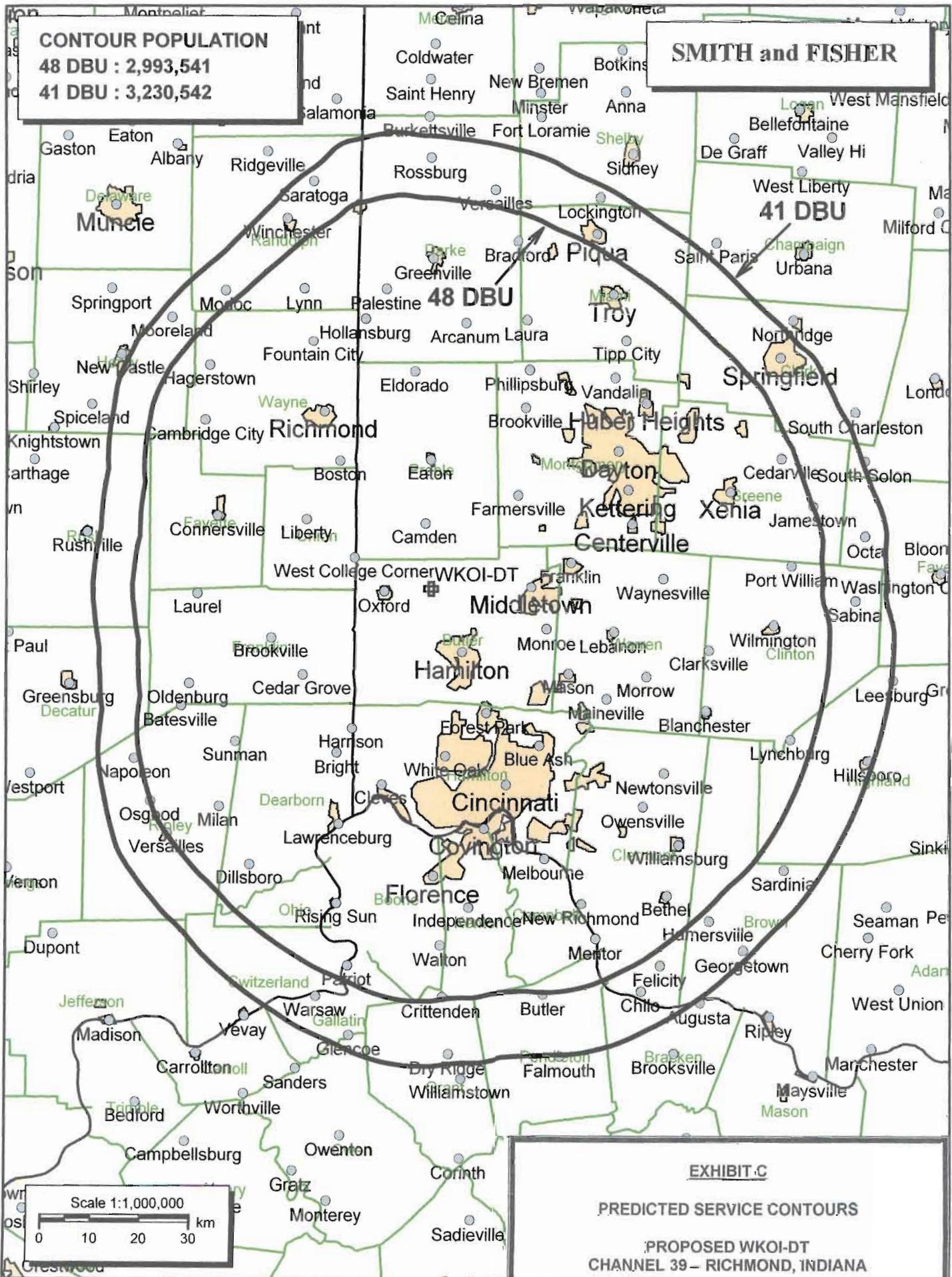
Type:	ATW-C1	
	Numeric	dBd
Directivity:	1.52	1.82
Peak(s) at:		
Polarization:	Horizontal	
Channel:	39	
Location:		
Note:		



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

ANTENNA RADIATION VALUES  
PROPOSED WKOI-DT  
CHANNEL 39 - RICHMOND, INDIANA

<u>Azimuth</u> (° T)	<u>Relative</u> <u>Field</u>	<u>ERP</u> (dbk)	<u>Azimuth</u> (° T)	<u>Relative</u> <u>Field</u>	<u>ERP</u> (dbk)
0	0.98	27.6	180	0.98	27.6
10	0.99	27.7	190	0.92	27.1
20	1.00	27.8	200	0.81	26.0
30	1.00	27.8	210	0.70	24.7
40	0.97	27.5	220	0.60	23.4
50	0.94	27.3	230	0.50	21.8
60	0.94	27.3	240	0.36	18.9
70	0.97	27.5	250	0.23	15.0
80	0.99	27.7	260	0.19	13.4
90	1.00	27.8	270	0.20	13.8
100	0.99	27.7	280	0.19	13.4
110	0.97	27.5	290	0.23	15.0
120	0.94	27.3	300	0.36	18.9
130	0.94	27.3	310	0.50	21.8
140	0.97	27.5	320	0.60	23.4
150	1.00	27.8	330	0.70	24.7
160	1.00	27.8	340	0.81	26.0
170	0.99	27.7	350	0.92	27.1



**CONTOUR POPULATION**  
**48 DBU : 2,993,541**  
**41 DBU : 3,230,542**

**SMITH and FISHER**

**EXHIBIT C**  
**PREDICTED SERVICE CONTOURS**  
**PROPOSED WKOI-DT**  
**CHANNEL 39 – RICHMOND, INDIANA**  
 SMITH AND FISHER

Scale 1:1,000,000  
 0 10 20 30 km

## INTERFERENCE STUDY

PROPOSED WKOI-DT  
CHANNEL 39 – RICHMOND, INDIANA

The instant application specifies an ERP of 600 kw (directional) at 296 meters above average terrain, which we have determined to be allowable under the FCC's recently approved interference standards with respect to various post-transition digital television facilities as they will exist on or before February 17, 2009, the date by which all stations must operate with the parameters recently adopted in the Commission's DTV Table of Allotments.

In evaluating the interference effect of this proposal, we have relied upon the V-Soft Communications "Probe III" computer program, which has been found generally to mimic the FCC's program. In conducting our studies, we employed a cell size of 1.0 kilometers and an increment spacing of 0.1 kilometer along each radial. In addition, we utilized the 2000 U.S. Census. Changes in interference caused by proposed WKOI-DT to other pertinent stations are tabulated in Exhibit D-2.

As shown, the proposed WKOI-DT facility would not contribute more than 0.5% interference (beyond that which is caused by the allotted WKOI-DT facility) to the service population of any potentially affected post-transition DTV station.

A Longley-Rice interference study also reveals that the proposed WKOI-DT facility does not cause significant (0.5%) interference within the protected service contour of any potentially affected Class A low power television station.

Therefore, this proposal meets the FCC's *de minimis* interference standards for DTV operations.

EXHIBIT D-2

## INTERFERENCE STUDY SUMMARY

PROPOSED WKOI-DT  
CHANNEL 39 – RICHMOND, INDIANA

<u>Call Sign</u>	<u>City, State</u>	<u>CH.</u>	<u>Coverage Population</u>	<u>Interference Population From WKOI-DT*</u>	<u>%</u>
WFXW-DT	Terre Haute, IN	39	680,606	0	0
WLEX-DT	Lexington, KY	39	862,878	1,782	0.21
WBQC-CA	Cincinnati, OH	38	1,566,269	4,905	0.31
WLPX-DT	Charleston, WV	39	939,283	1,409	0.15

\*Above that caused by the allotment facility.

Note: This study utilized a cell size of 1.0 km and an increment spacing of 0.1 km.

EXHIBIT E

POWER DENSITY CALCULATION  
PROPOSED WKOI-DT  
CHANNEL 39 – RICHMOND, INDIANA

Since the FCC considers the possible biological effects of RF transmissions in its environmental determinations, we have studied the matter with respect to this Richmond facility. Employing the methods set forth in *OET Bulletin No. 65* and considering a main-lobe effective radiated power of 600 kw, an antenna radiation center 289 meters above ground, and the elevation pattern of the Andrew antenna, maximum power density two meters above ground of  $0.00011 \text{ mw/cm}^2$  is calculated to occur 88 meters east of the base of the tower. Since this is less than 0.1 percent of the  $0.41 \text{ mw/cm}^2$  reference for uncontrolled environments (areas with public access) surrounding a facility operating on Channel 39 (620-626 MHz), a grant of this proposal may be considered a minor environmental action with respect to public and occupational ground-level exposure to nonionizing electromagnetic radiation.

Further, the station owner will take whatever precautionary steps are necessary, such as reducing power or leaving the air temporarily, to ensure that workers operating in the vicinity of the antenna are not exposed to excessive nonionizing radiation.