Lightner Communications, LLC
FM Translator W241CQ, Facility ID 200352, Altoona, PA
April 2020 Application for Minor Change Construction Permit
ENGINEERING STATEMENT

The application requests a minor Construction Permit to change effective radiated power, antenna location, antenna elevation, and antenna type of W241CQ. WKMC(AM) will remain as the primary station.

Figure 1 demonstrates that the proposed 60 dBu contour overlaps that of the licensed W241CQ facility (BLFT-20180509ADC) and also shows that its predicted 60 dBu coverage contour does not extend beyond a 25-mile radius of primary station WKMC(AM) Roaring Spring, PA (Facility ID 72315) operating on 1370 kHz. All contours in the instant application are based on FCC 30-second terrain data.

Figure 2 shows that all co-channel and 1st-adjacent FM stations will be protected against prohibited contour overlap. **Figure 3** shows the relationship between the proposed translator facility and local 2nd- and 3rd-Adjacent stations. The predicted field strength of WKYE, Channel 243B at the proposed W241CQ site is 60 dBu, 5 dB less than that of WFGI-FM, Channel 238B; therefore, the relevant interference contour is 100 dBu. These contours are shown in greater detail on a topographic map in **Figure 4**. Please note that the closest habitable building is a residence over 400 meters west of the proposed W241CQ antenna location. All structures in the overlap area are TV and FM transmitting stations or other communications facilities in the "Wopsy" antenna farm. Applicant believes this showing satisfies requirements of §74.1204(d) in accordance with the "Living Way" precedent.

Figure 5 is a polar plot with tabulation of the proposed directional antenna pattern, based on a Kathrein/Scala model CA2-FM/CP reflector-dipole oriented at 150 degrees azimuth.

The proposed W241CQ facility will produce a radiofrequency power density less than 20.8 μW/cm² at two meters above ground level, only 10.4 percent of the General Population/Uncontrolled guideline, as shown in **Figure 6**. In coordination with other users, applicant will reduce power or cease operation of W241CQ as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic fields in excess of FCC guidelines.

Figure 1
Proposed Coverage Contour

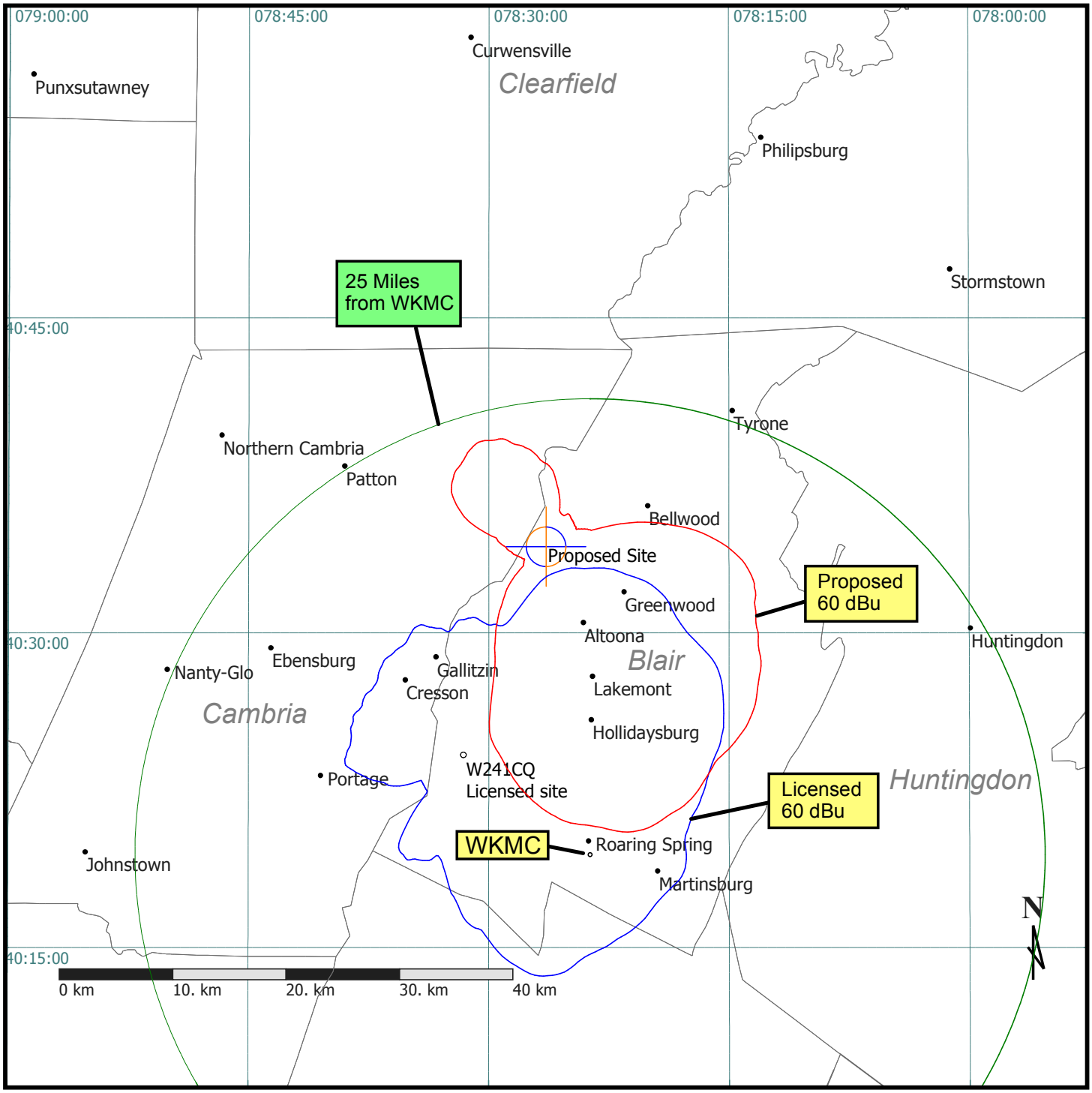


Figure 2
Co-Channel and 1st-Adjacent Contour Protection

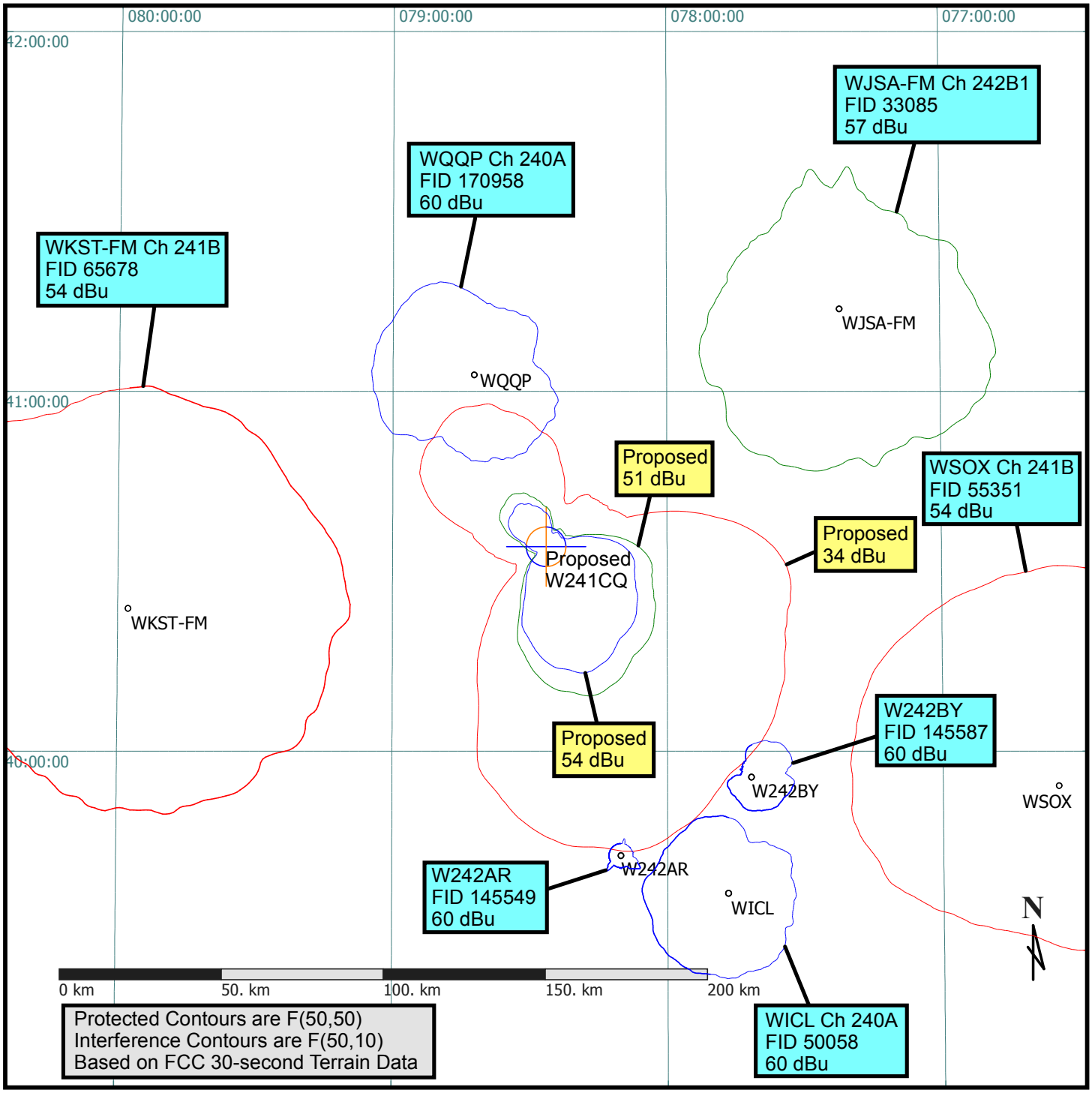


Figure 3
2nd- and 3rd-Adjacent Contour Protection

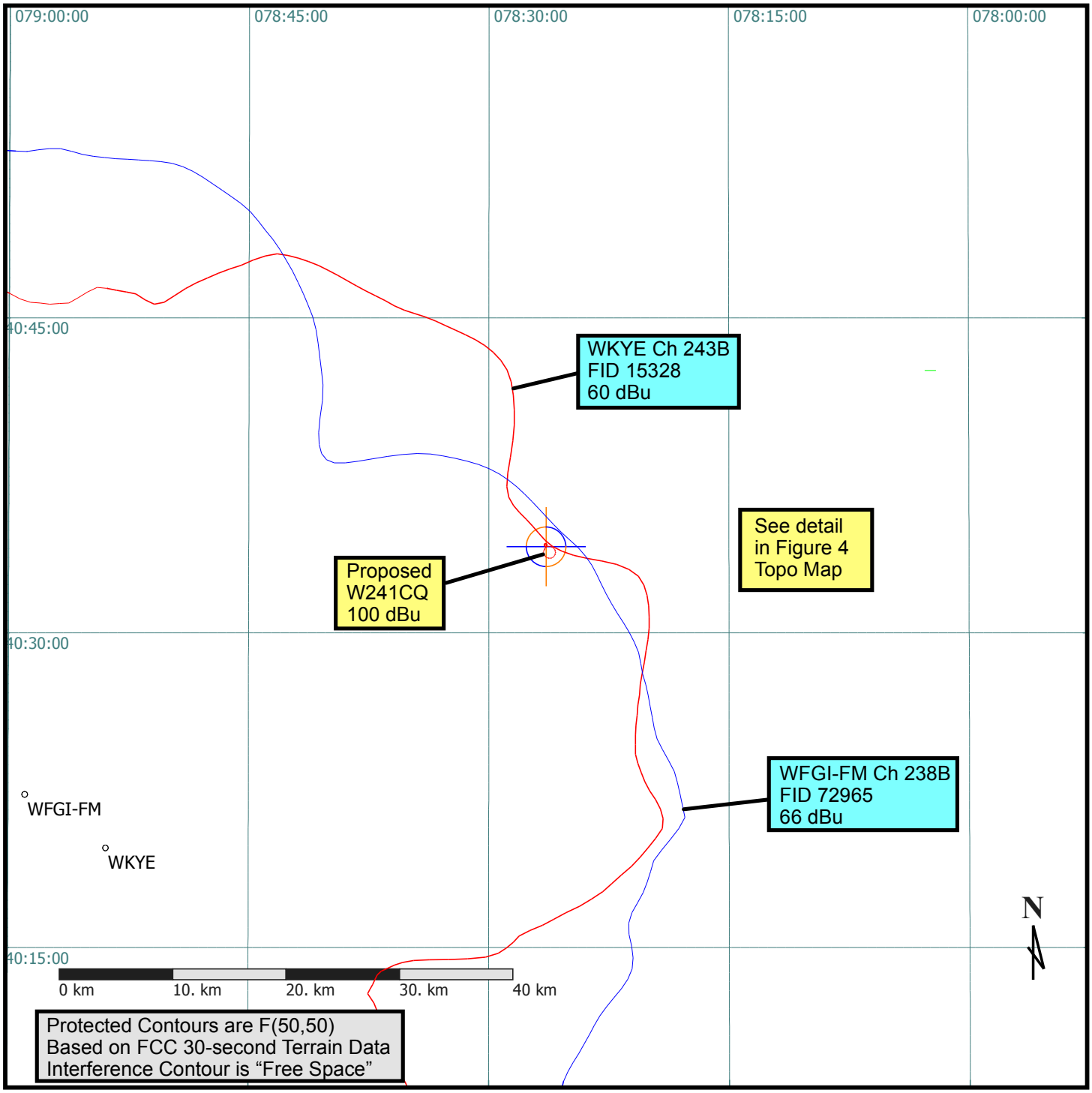


Figure 4
Detail of Proposed 100 dBu Contour

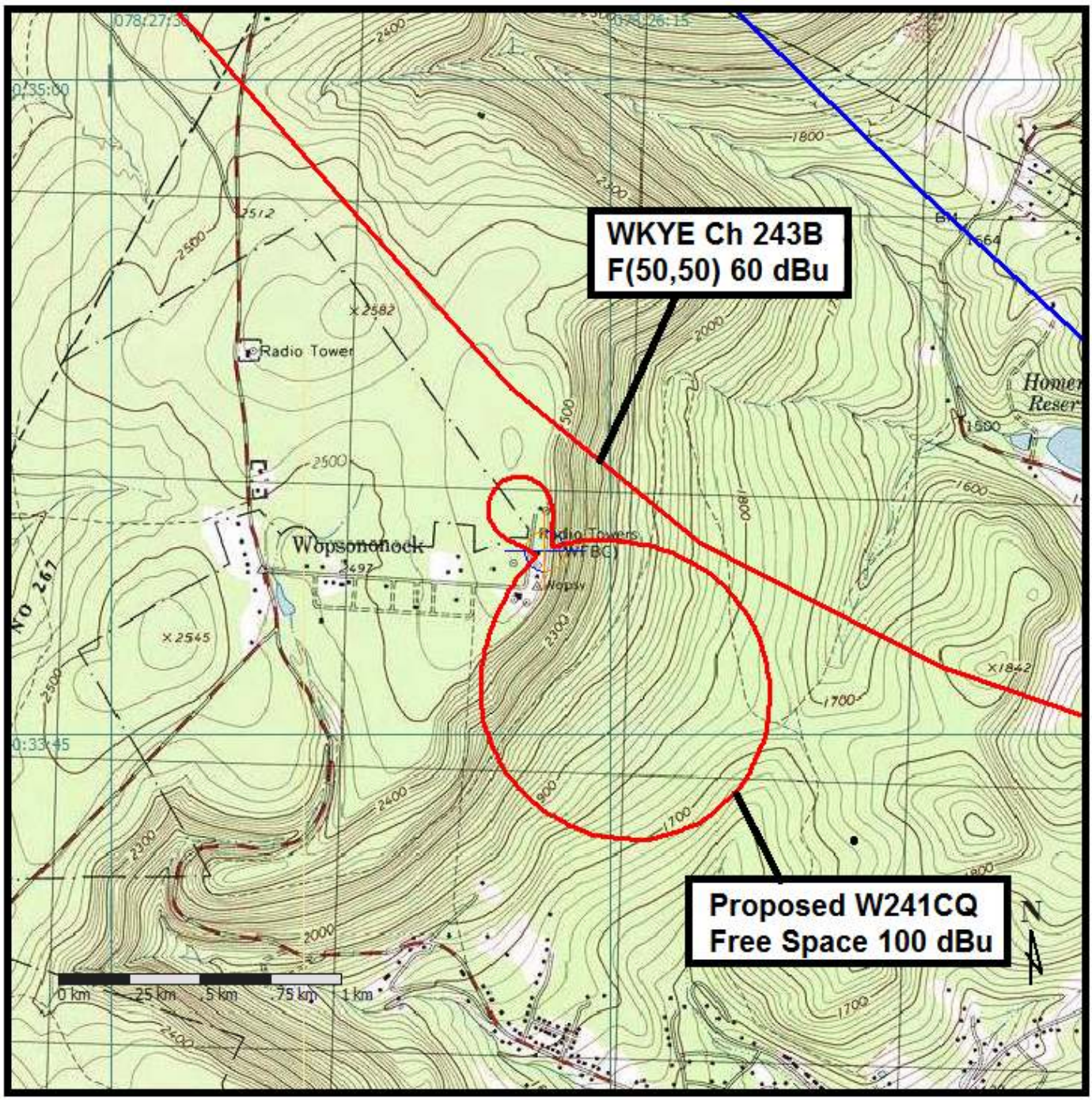
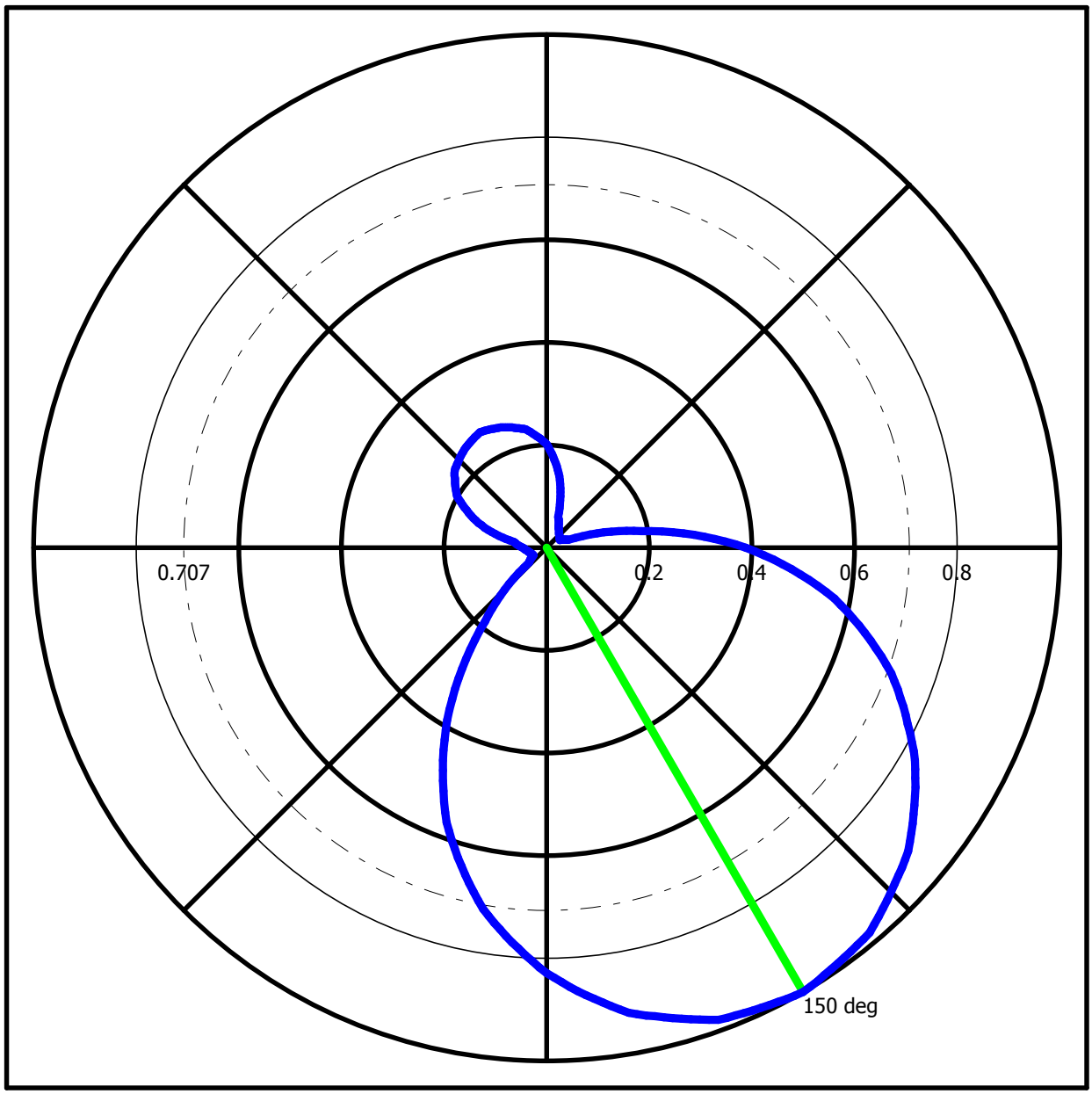


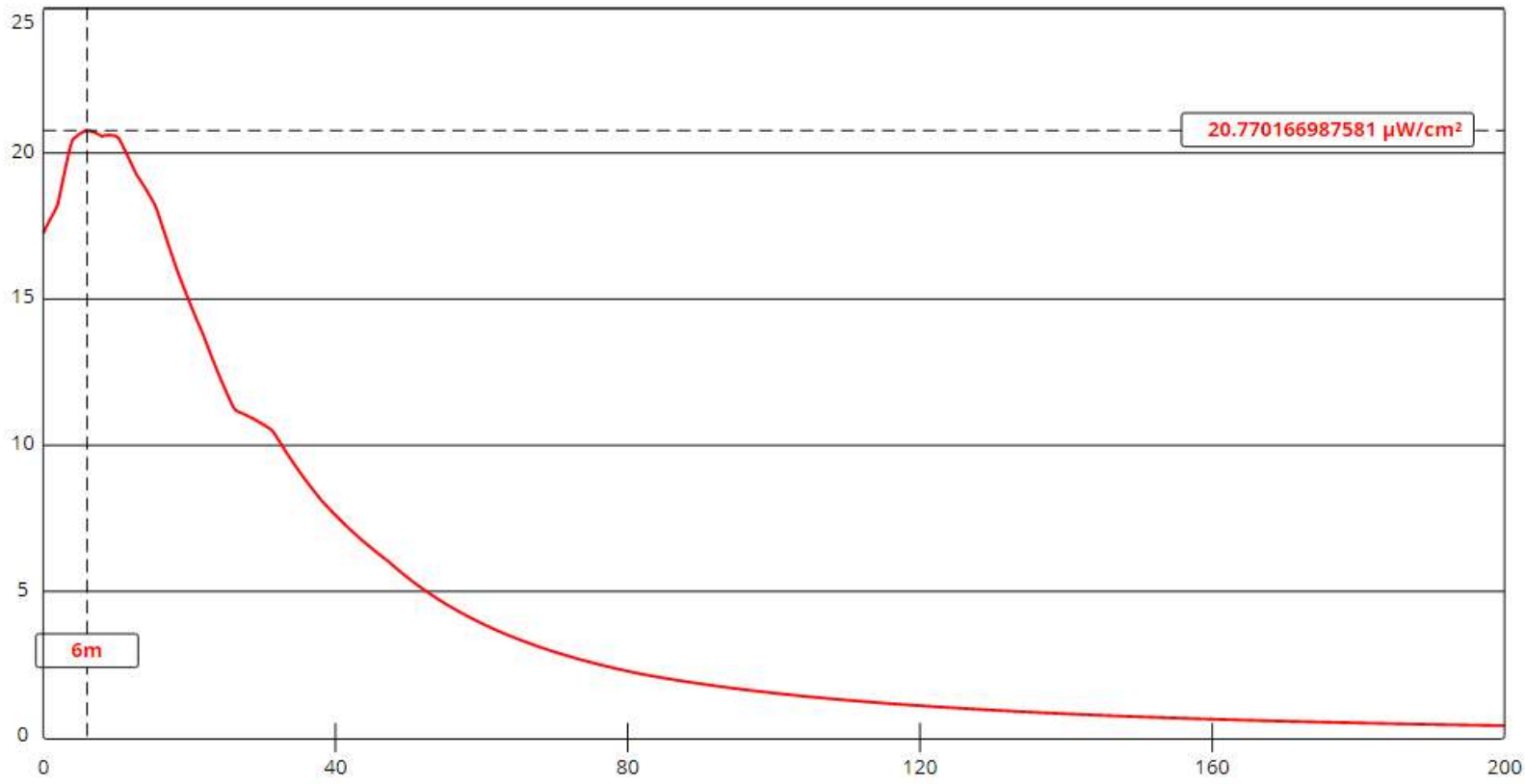
Figure 5

Antenna Pattern (Azimuth)



Degree	Field	Degree	Field	Degree	Field	Degree	Field	Degree	Field	Degree	Field
000	0.202	060	0.030	120	0.829	180	0.829	240	0.030	300	0.202
010	0.142	070	0.045	130	0.920	190	0.715	250	0.032	310	0.234
020	0.065	080	0.187	140	0.979	200	0.570	260	0.037	320	0.250
030	0.046	090	0.388	150	1.000	210	0.388	270	0.046	330	0.260
040	0.037	100	0.570	160	0.979	220	0.187	280	0.065	340	0.250
050	0.032	110	0.715	170	0.920	230	0.045	290	0.142	350	0.234

Figure 6 -- FM Model Power Density Plot



View Tabular Results +

Channel Selection	Channel 241 (96.1 MHz) ▼		
Antenna Type +	EPA Type 1: Ring-and-Stub or "Other" ▼		
Height (m)	24	Distance (m)	200
ERP-H (W)	250	ERP-V (W)	250
Num of Elements	1	Element Spacing (λ)	1
Num of Points	500	Apply	