

# R. M. SMITH ASSOCIATES

BROADCAST TECHNICAL CONSULTANTS  
10920B CROWN COLONY DRIVE – AUSTIN, TX 78747  
Tel: (512)-294-2334 - Cell: (772)-485-7548  
E-MAIL bob@rmsmith.com

CHRISTIAN MINISTRIES, INC.  
APPLICATION FOR NEW NON-COMMERCIAL FM  
HYDE PARK, VERMONT – 205A  
RF EXPOSURE LEVELS

The proposed operation of channel 205A, in Hyde Park, VT, will utilize a Shively 6812B-FW-2 antenna. The antenna is a two-bay, full wave spaced design, mounted on a pole, atop a building, with the center of radiation (“C/R”) 10 meters above ground. The occupied floor of the building is 9 meters below the C/R.

The attached Table 1 shows the calculated RF field at various horizontal distances from the base of the antenna at two meters above the floor. The field is found from the following formula contained in the F.C.C. OET-65 Bulletin:

$$S = \frac{33.4 (F^2) ERP}{R^2}$$

Where: S = power density  $\mu\text{W}/\text{cm}^2$   
F = relative field factor of antenna (from Shively datasheet)  
ERP = power in Watts  
R=distance in meters from antenna

As shown in Table 1, the highest RF power density occurs 4 meters horizontally from the antenna. The power density at this location is  $50.9 \mu\text{W}/\text{cm}^2$  which is 25.5% of the Maximum Permissible Exposure for the general population.

The applicant is aware that RF levels in excess of the Guidelines may be present in the vicinity of the antenna. Exposure to levels more than the Guidelines will be prevented by lowering the ERP or cessation of transmission when workers are present.

CHRISTIAN MINISTRIES, INC. - 205A - HYDE PARK, VT  
 ENGINEERING STATEMENT

TABLE 1

PROPOSED OPERATION 205A HYDE PARK, VT

Antenna Make	Shively	
Antenna Model	6812B-FW-2	
ERP (W)	800	400 Horiz + 400 Vert
Antenna C/R AGL (m)	10	
Height over Head (m)	7	

<u>Horizontal Distance from Antenna (m)</u>	<u>Downward Angle (o)</u>	<u>Distance from C/R (m)</u>	<u>Field</u>	<u>Power Density uW/cm2</u>	<u>General Population MPE %</u>
0	90.0	7.0	0.000	0.0	0.00
1	81.9	7.1	0.135	9.7	4.87
2	74.1	7.3	0.247	30.8	15.38
3	66.8	7.6	0.321	47.5	23.73
4	60.3	8.1	0.352	50.9	25.47
5	54.5	8.6	0.345	43.0	21.49
6	49.4	9.2	0.301	28.5	14.24
7	45.0	9.9	0.233	14.8	7.40
8	41.2	10.6	0.152	5.5	2.73
9	37.9	11.4	0.065	0.9	0.43
10	35.0	12.2	0.023	0.1	0.05
11	32.5	13.0	0.108	1.8	0.92
12	30.3	13.9	0.185	4.7	2.37
13	28.3	14.8	0.259	8.2	4.11
14	26.6	15.7	0.326	11.6	5.80
15	25.0	16.6	0.383	14.3	7.15
16	23.6	17.5	0.439	16.9	8.44
17	22.4	18.4	0.476	17.9	8.96
18	21.3	19.3	0.523	19.6	9.80
19	20.2	20.2	0.564	20.7	10.37
20	19.3	21.2	0.618	22.7	11.36
25	15.6	26.0	0.722	20.7	10.33
26	15.1	26.9	0.739	20.1	10.06
27	14.5	27.9	0.757	19.7	9.84
28	14.0	28.9	0.773	19.2	9.58
29	13.6	29.8	0.776	18.1	9.04
30	13.1	30.8	0.800	18.0	9.01
35	11.3	35.7	0.851	15.2	7.59
40	9.9	40.6	0.882	12.6	6.30
45	8.8	45.5	0.906	10.6	5.29
50	8.0	50.5	0.922	8.9	4.46