

RF Worksheet #1 – FM (including translators & boosters)

PLEASE COPY BEFORE USING. THE DETERMINATION OF COMPLIANCE MAY INVOLVE REPEATED CALCULATIONS. IF LOCATED ON A MULTIPLE FM USER TOWER, PLEASE COMPLETE RF WORKSHEET 1A BEFORE PROCEEDING.

EFFECTIVE RADIATION CENTER HEIGHT

Enter proposed "height of radiation center above ground" OR as listed in Line 1 of Worksheet 1A. 140 m (1)

Is antenna supporting structure located on the roof of a building? (check one)

☐ Yes ☒ No (2)

If Line 2 is "Yes" enter the building height measured at the base of the antenna supporting structure in Line 3

If Line 2 is "No" enter "0" in Line 3 0 m (3)

Subtract Line (3) from Line (1) 140 m (4)

Subtract the value 2.0 from Line (4) 138 m (5)

TOTAL EFFECTIVE RADIATED POWER

(If "beam tilt" is utilized, list maximum values)

List Effective Radiated Power in the Horizontal Plane 50 kW (6)

List Effective Radiated Power in the Vertical Plane 50 kW (7)

Add Lines (6) and (7) OR list value from Line 2 in Worksheet 1A 100 kW (8)

PERCENTAGE OF FCC RF LIMIT(S) FOR MAXIMUM PERMISSIBLE EXPOSURE

Multiply Line (8) by 33.41 3341 (9)

Multiply the value listed in Line (5) by itself 19,044 (10)

Divide Line (9) by Line (10) 0.1754 (11)

Multiply Line (11) by (100) 17.54 (12)

DETERMINATION OF COMPLIANCE WITH CONTROLLED/OCCUPATIONAL LIMIT

Does Line (12) exceed 100% ☐ Yes ☒ No (13)

IF YOU ANSWERED "YES" IN LINE (13), THE WORKSHEETS MAY NOT BE USED IN THIS CASE.*

IF YOU ANSWERED "NO" IN LINE (13), THEN THE SITE SHOULD COMPLY WITH THE FCC'S CONTROLLED/OCCUPATIONAL RF EXPOSURE LIMITS FOR GROUND LEVEL EXPOSURE

*In this case, you may need to prepare an Environmental Assessment. See Instructions for Section III-C FCC Form 301.

DETERMINATION OF COMPLIANCE WITH THE UNCONTROLLED/GENERAL POPULATION LIMIT

Does Line (12) exceed 20% ☐ Yes ☒ No (14)

IF YOU ANSWERED "NO" IN LINE (14), THEN THE SITE SHOULD COMPLY WITH THE FCC'S UNCONTROLLED/GENERAL POPULATION RF EXPOSURE LIMITS FOR GROUND LEVEL EXPOSURE. NO FURTHER STUDY REQUIRED.

IF YOU ANSWERED "YES" IN LINE (14), CONTINUE.

ROOFTOP WITH RESTRICTED ACCESS.

If you answered "YES" in Line (14) and "YES" in Line (2) (indicating that the tower is located on the roof of a building), and the general public is not allowed access to the rooftop level, repeat lines 5 through 12, entering the value in Line (1) directly in Line (4). (If Multiple FM Use tower, recalculations should be in accordance with instructions on Worksheet #1A.) Otherwise, go to the next section.

Upon recalculation, does Line (12) exceed 20%..... ☐ Yes ☐ No (15)

IF YOU ANSWERED "YES" IN LINE (15), THE WORKSHEETS MAY NOT BE USED IN THIS CASE.*

IF YOU ANSWERED "NO" IN LINE (15), THEN THE AREA AT GROUND LEVEL SHOULD COMPLY WITH THE FCC'S UNCONTROLLED/GENERAL POPULATION EXPOSURE LIMIT. NO FURTHER STUDY REQUIRED.

ACCESS TO BASE OF TOWER RESTRICTED BY FENCING.

If the tower is not located on the roof of a building, is the base of the tower surrounded by fencing or other restrictive barrier and are appropriate warning signs posted on the fence that adequately detail the nature of the RF exposure environment contained therein?.....

☒ Yes ☐ No (16)

IF YOU ANSWERED "NO" IN LINE (16), THE WORKSHEET MAY NOT BE USED IN THIS CASE.*

If you answered "Yes" in Line (16), what is the distance from the base

of the tower to the fence or barrier at its nearest point..... m (17)

Multiply Line (9) (as calculated previously) by 5..... (18)

Subtract Line (10) (as calculated previously) from Line (18)..... (19)

Take the square root of Line (19)..... m (20)

Is Line (20) less than or equal to Line (17)..... ☐ Yes ☐ No (21)

IF YOU ANSWERED "YES" IN LINE (21), THEN THE RF FIELD OUTSIDE THE FENCE COMPLIES WITH THE FCC'S UNCONTROLLED/GENERAL POPULATION EXPOSURE LIMIT. NO FURTHER STUDY REQUIRED.

IF YOU ANSWERED "NO" IN LINE (21), THE WORKSHEETS MAY NOT BE USED IN THIS CASE.*

* In this case, you may need to prepare an Environmental Assessment. See instructions for Section III-C of FCC Form 301.

N/A

RF WORKSHEET #1A - Multiple FM Use Tower

The procedure below will allow for a "worst-case" determination to be made in situations where several FM stations share a common tower. This determination is based upon the "worst case" assumption that all RF energy is emanating from a single antenna located at the same height (i.e., antenna center of radiation above ground level) as the lowest user on the tower.

Complete for all call signs.

For each call sign, the total of the Horizontal and the Vertical ERP's must be used. If "beam tilt" is utilized, list maximum values.

COLUMN 1 CALL SIGN	COLUMN 2 HEIGHT OF ANTENNA RADIATION CENTER ABOVE GROUND LEVEL	COLUMN 3 TOTAL EFFECTIVE RADIATED POWER (HORIZONTAL AND VERTICAL)
	meters	kilowatts
	meters	kilowatts
	meters	kilowatts
	meters	kilowatts
	meters	kilowatts
	meters	kilowatts

List the smallest value in Column 2..... m (1)
 List the total of all values in Column 3..... kW (2)

The value listed in line (1) above must be used in line (1) on Worksheet 1.
 The value listed in line (2) above must be used in line (8) on Worksheet 1.

Now complete worksheet 1 (except for lines 6 and 7).

RF WORKSHEET #2: AM

PLEASE COPY THIS WORKSHEET PRIOR TO USING. IN THE CASE OF A MULTIPLE TOWER ARRAY, A COPY IS NECESSARY FOR EACH TOWER LISTED IN RF WORKSHEET #2A. See AM Instruction b. to "How to Use RF worksheets" on page 5 of Appendix A.

SINGLE TOWER #1

Enter the transmitted power..... 0.594 kW (1)
 Enter the distance from the tower to the nearest point of the fence or other
 restrictive barrier enclosing the tower..... 7.6 m (2)

DETERMINATION OF WAVELENGTH

Method 1: Electrical Height

The tower height in wavelength may be obtained from the electrical height in degrees of the radiator

Electrical height of the radiator..... 96 degrees (3a)
 Divide Line 3(a) by 360 degrees..... 0.26 wavelength (3b)

Method 2: Physical Height

Alternatively, the wavelength may be obtained from the physical height of the radiator above the tower base and the frequency of the station.

Overall height of the radiator above the tower base..... m (4a)
 List the station's frequency..... kHz (4b)
 Divide 300,000 by Line (4b)..... m (4c)
 Divide Line (4a) by Line 4(c)..... wavelength (4d)

REQUIRED RESTRICTION DISTANCE

Use the appropriate AM fence distance table based on the wavelength determined in either Line (3b) or Line (4d) above. If the transmitted power is not listed in the table, use next highest value (e.g., if the transmitted power is 2.5 kW, use the fence value in the 5 kW column).

List the fence distance obtained from the appropriate table..... 1 m (5)

Is the value listed in Line (5) less than or equal to the value listed in Line (2)? ☒ Yes ☐ No (6)

If line (6) is "Yes," are warning signs posted at appropriate intervals which describe the nature of the potential hazard? ☒ Yes ☐ No (7)