

**Federal Communications Commission**

**§ 22.659**

NOTE: All coordinates are referenced to North American Datum 1983 (NAD83):

| Control transmitter frequency range | Protected TV station location                            |
|-------------------------------------|----------------------------------------------------------|
| 470-476 MHz.                        | Washington, DC, 38°57'17.4" N. Lat. 77°00'15.9" W. Long. |
| 476-482 MHz.                        | Lancaster, PA, 40°15'45.3" N. Lat. 76°27'47.9" W. Long.  |

(g) The FCC may waive specific distance separation requirements of paragraphs (d) through (f) of this section if the applicant submits an engineering analysis which demonstrates that terrain effects and/or operation with less effective radiated power would satisfy the applicable minimum desired to undesired signal strength ratios at the Grade B contours of the protected TV stations. For this purpose, the Grade B contour of a TV station is deemed to be a circle with a 89 kilometer (55 mile) radius, centered on the protected TV station location, and along which the median TV signal field strength is 64 dBµV/m. In any showing intended to demonstrate compliance with the minimum desired to undesired signal ratio requirements of this section, all predicted field strengths must have been determined using the UHF TV propagation curves contained in part 73 of this chapter.

[59 FR 59507, Nov. 17, 1994, as amended at 63 FR 68947, Dec. 14, 1998]

**§ 22.659 Effective radiated power limits.**

The purpose of the rules in this section, which limit effective radiated power (ERP), is to reduce the likelihood that interference to television reception from public mobile operations on these channels will occur. The protected TV station locations specified in this section are the locations of record as of September 1974, and these do not change even though the TV stations may have been subsequently relocated.

(a) *Maximum ERP.* The ERP of base transmitters must not exceed 100 Watts

under any circumstances. The ERP of mobile transmitters must not exceed 60 Watts under any circumstances.

(b) *Co-channel protection from base transmitters.* The ERP of base transmitters in the New York-Northeastern New Jersey urban area must not exceed the limits in the tables referenced in paragraphs (b)(2) and (b)(3) of this section. The limits depend upon the height above average terrain of the base transmitter antenna and the distance between the base transmitter and the nearest protected TV station location in paragraph (b)(1) of this section.

(1) The protected TV station locations are as follows (all coordinates are referenced to North American Datum 1983 (NAD83)):

| Control transmitter frequency range | Protected TV station location                            |
|-------------------------------------|----------------------------------------------------------|
| 470-476 MHz.                        | Washington, DC, 38°57'17.4" N. Lat. 77°00'15.9" W. Long. |
| 476-482 MHz.                        | Lancaster, PA, 40°15'45.3" N. Lat. 76°27'47.9" W. Long.  |

(2) Tables E-8 and E-9 of this section apply to base transmitters in the New York-Northeastern New Jersey urban area that transmit on channels in the 476-482 MHz range.

(3) Tables E-10 and E-11 of this section apply to base transmitters in the New York-Northeastern New Jersey urban area that transmit on channels in the 470-476 MHz range.

(c) *Adjacent channel protection from base transmitters.* The ERP of base transmitters must not exceed the limits in Table E-12 of this section. The limits depend upon the height above average terrain of the base transmitter antenna and the distance between the base transmitter and the nearest protected TV station location specified in paragraph (c)(1) of this section.

(1) The protected TV station locations are as follows (all coordinates are referenced to North American Datum 1983 (NAD83)):

| Control transmitter frequency range | Protected TV station location                                | TV channel |
|-------------------------------------|--------------------------------------------------------------|------------|
| 470-476 MHz .....                   | Hanover, NH, 43°42'30.3" N. Lat. 72°09'14.3" W. Long .....   | (15)       |
| 476-482 MHz .....                   | Lancaster, PA, 40°15'45.3" N. Lat. 76°27'47.9" W. Long ..... | (15)       |
| 482-488 MHz .....                   | Scranton, PA, 41°10'58.3" N. Lat. 75°52'19.7" W. Long .....  | (16)       |

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| Control transmitter frequency range | Protected TV station location                              | TV channel |
|-------------------------------------|------------------------------------------------------------|------------|
|                                     | Hanover, NH, 43°42'30.3" N. Lat. 72°09'14.3" W. Long ..... | (15)       |

NOTE: Coordinates are referenced to North American Datum 1983 (NAD83).

(2) Table E–12 of this section applies to base transmitters in the New York-Northeastern New Jersey urban area.

TABLE E–8—MAXIMUM ERP (WATTS) FOR BASE TRANSMITTERS (HAAT 152 METERS OR LESS)

| Distance to protected TV station in kilometers (miles) | Antenna height above average terrain in meters (feet) |          |          |          |          |          |           |           |           |           |
|--------------------------------------------------------|-------------------------------------------------------|----------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|
|                                                        | 15 (50)                                               | 30 (100) | 46 (150) | 61 (200) | 76 (250) | 91 (300) | 107 (350) | 122 (400) | 137 (450) | 152 (500) |
| 209 (130) .....                                        | 1000                                                  | 1000     | 1000     | 1000     | 1000     | 1000     | 1000      | 1000      | 1000      | 1000      |
| 201 (125) .....                                        | 1000                                                  | 1000     | 1000     | 1000     | 1000     | 1000     | 1000      | 850       | 750       | 725       |
| 193 (120) .....                                        | 1000                                                  | 1000     | 1000     | 1000     | 900      | 750      | 675       | 600       | 550       | 500       |
| 185 (115) .....                                        | 1000                                                  | 1000     | 800      | 725      | 600      | 525      | 475       | 425       | 375       | 350       |
| 177 (110) .....                                        | 850                                                   | 700      | 600      | 500      | 425      | 375      | 325       | 300       | 275       | 225       |
| 169 (105) .....                                        | 600                                                   | 475      | 400      | 325      | 275      | 250      | 225       | 200       | 175       | 150       |
| 161 (100) .....                                        | 400                                                   | 325      | 275      | 225      | 175      | 150      | 140       | 125       | 110       | 100       |
| 153 (95) .....                                         | 275                                                   | 225      | 175      | 125      | 110      | 95       | 80        | 70        | 60        | 50        |
| 145 (90) .....                                         | 175                                                   | 125      | 100      | 75       | 50       | .....    | .....     | .....     | .....     | .....     |

See § 22.659(b)(2). This table is for antenna heights of 152 meters (500 feet) or less above average terrain. For antenna heights between those in the table, use the next higher antenna height. For distances between those in the table, use the next lower distance.

TABLE E–9—MAXIMUM ERP (WATTS) FOR BASE TRANSMITTERS (HAAT MORE THAN 152 METERS)

| Distance to protected TV station in kilometers (miles) | Antenna height above average terrain in meters (feet) |            |            |            |            |            |
|--------------------------------------------------------|-------------------------------------------------------|------------|------------|------------|------------|------------|
|                                                        | 152 (500)                                             | 305 (1000) | 457 (1500) | 610 (2000) | 762 (2500) | 914 (3000) |
| 209 (130) .....                                        | 1000                                                  | 447        | 219        | 117        | 71         | 46         |
| 193 (120) .....                                        | 500                                                   | 209        | 95         | 50         | 30         | 19         |
| 177 (110) .....                                        | 225                                                   | 91         | 35         | 19         | 11         | 8          |
| 161 (100) .....                                        | 100                                                   | 30         | 10         | 5          | 3          | 2          |
| 153 (95) .....                                         | 50                                                    | 13         | 5          | 3          | 2          | 1          |

See § 22.659(b)(2). This table is for antenna heights of more than 152 meters (500 feet) above average terrain. For intermediate values of height and/or distance, use linear interpolation to obtain the maximum permitted ERP.

TABLE E–10—MAXIMUM ERP (WATTS) FOR BASE TRANSMITTERS (HAAT 152 METERS OR LESS)

| Distance to protected TV station in kilometers (miles) | Antenna height above average terrain in meters (feet) |          |          |          |          |          |           |           |           |           |
|--------------------------------------------------------|-------------------------------------------------------|----------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|
|                                                        | 15 (50)                                               | 30 (100) | 46 (150) | 61 (200) | 76 (250) | 91 (300) | 107 (350) | 122 (400) | 137 (450) | 152 (500) |
| 261 (162) .....                                        | 1000                                                  | 1000     | 1000     | 1000     | 1000     | 1000     | 1000      | 1000      | 1000      | 1000      |
| 257 (160) .....                                        | 1000                                                  | 1000     | 1000     | 1000     | 1000     | 1000     | 1000      | 1000      | 1000      | 800       |
| 249 (155) .....                                        | 1000                                                  | 1000     | 1000     | 1000     | 1000     | 875      | 775       | 700       | 625       | 575       |
| 241 (150) .....                                        | 1000                                                  | 1000     | 950      | 775      | 725      | 625      | 550       | 500       | 450       | 400       |
| 233 (145) .....                                        | 850                                                   | 750      | 650      | 575      | 500      | 440      | 400       | 350       | 320       | 300       |
| 225 (140) .....                                        | 600                                                   | 575      | 465      | 400      | 350      | 300      | 275       | 250       | 230       | 225       |
| 217 (135) .....                                        | 450                                                   | 400      | 335      | 300      | 255      | 240      | 200       | 185       | 165       | 150       |
| 209 (130) .....                                        | 350                                                   | 300      | 245      | 200      | 185      | 160      | 145       | 125       | 120       | 100       |
| 201 (125) .....                                        | 225                                                   | 200      | 170      | 150      | 125      | 110      | 100       | 90        | 80        | 75        |
| 193 (120) .....                                        | 175                                                   | 150      | 125      | 105      | 90       | 80       | 70        | 60        | 55        | 50        |

See § 22.659(b)(3). This table applies for antenna heights of 152 meters (500 feet) or less above average terrain. For antenna heights between those in the table, use the next higher antenna height. For distances between those in the table, use the next lower distance.

TABLE E–11—MAXIMUM ERP (WATTS) FOR BASE TRANSMITTERS (HAAT MORE THAN 152 METERS)

| Distance to protected TV station in kilometers (miles) | Antenna height above average terrain in meters (feet) |            |            |            |            |            |
|--------------------------------------------------------|-------------------------------------------------------|------------|------------|------------|------------|------------|
|                                                        | 152 (500)                                             | 305 (1000) | 457 (1500) | 610 (2000) | 762 (2500) | 914 (3000) |
| 261 (162) .....                                        | 1000                                                  | 501        | 282        | 170        | 110        | 71         |
| 241 (150) .....                                        | 400                                                   | 209        | 110        | 60         | 36         | 23         |
| 225 (140) .....                                        | 225                                                   | 102        | 50         | 28         | 16         | 10         |

TABLE E-11—MAXIMUM ERP (WATTS) FOR BASE TRANSMITTERS (HAAT MORE THAN 152 METERS)—Continued

| Distance to protected TV station in kilometers (miles) | Antenna height above average terrain in meters (feet) |               |               |               |               |               |
|--------------------------------------------------------|-------------------------------------------------------|---------------|---------------|---------------|---------------|---------------|
|                                                        | 152<br>(500)                                          | 305<br>(1000) | 457<br>(1500) | 610<br>(2000) | 762<br>(2500) | 914<br>(3000) |
| 209 (130) .....                                        | 100                                                   | 48            | 21            | 11            | 7             | 5             |
| 193 (120) .....                                        | 50                                                    | 19            | 9             | 5             | 3             | 2             |

See § 22.659(b)(3). This table is for antenna heights of more than 152 meters (500 feet) above average terrain. For intermediate values of height and/or distance, use linear interpolation to obtain the maximum permitted ERP.

TABLE E-12—MAXIMUM ERP (WATTS) FOR BASE TRANSMITTERS

| Distance to protected TV station in kilometers (miles) | Antenna height above average terrain in meters (feet) |             |             |             |             |              |              |              |              |
|--------------------------------------------------------|-------------------------------------------------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|--------------|
|                                                        | 30<br>(100)                                           | 46<br>(150) | 61<br>(200) | 76<br>(250) | 91<br>(300) | 107<br>(350) | 122<br>(400) | 137<br>(450) | 152<br>(500) |
| 108 (67) .....                                         | 1000                                                  | 1000        | 1000        | 1000        | 1000        | 1000         | 1000         | 1000         | 1000         |
| 106 (66) .....                                         | 1000                                                  | 1000        | 1000        | 1000        | 1000        | 1000         | 1000         | 1000         | 750          |
| 105 (65) .....                                         | 1000                                                  | 1000        | 1000        | 1000        | 1000        | 1000         | 825          | 650          | 600          |
| 103 (64) .....                                         | 1000                                                  | 1000        | 1000        | 1000        | 1000        | 775          | 625          | 500          | 400          |
| 101 (63) .....                                         | 1000                                                  | 1000        | 1000        | 1000        | 440         | 400          | 350          | 320          | 300          |
| 100 (62) .....                                         | 1000                                                  | 1000        | 1000        | 525         | 375         | 250          | 200          | 150          | 125          |
| 98 (61) .....                                          | 1000                                                  | 700         | 450         | 250         | 200         | 125          | 100          | 75           | 50           |
| 97 (60) .....                                          | 1000                                                  | 425         | 225         | 125         | 100         | 75           | 50           | .....        | .....        |

See § 22.659(c)(2). This table applies to base transmitters in the New York-Northeastern New Jersey urban areas. This table is for antenna heights of 152 meters (500 feet) or less above average terrain. For antenna heights between those in the table, use the next higher antenna height. For distances between those in the table, use the next lower distance.

[59 FR 59507, Nov. 17, 1994, as amended at 63 FR 68947, Dec. 14, 1998]

**Subpart F—Rural Radiotelephone Service**

**§ 22.701 Scope.**

The rules in this subpart govern the licensing and operation of stations and systems in the Rural Radiotelephone Service. The licensing and operation of these stations and systems is also subject to rules elsewhere in this part that apply generally to the Public Mobile Services. In case of conflict, however, the rules in this subpart govern.

**§ 22.702 Eligibility.**

Existing and proposed communications common carriers are eligible to hold authorizations to operate conventional central office, interoffice and rural stations in the Rural Radiotelephone Service. Subscribers are also eligible to hold authorizations to operate rural subscriber stations in the Rural Radiotelephone Service.

[69 FR 75170, Dec. 15, 2004]

**§ 22.703 Separate rural subscriber station authorization not required.**

A separate authorization is not required for rural subscriber stations for

which the effective radiated power does not exceed 60 Watts and for which FAA notification of construction or alteration of the antenna structure is not required (see criteria in § 17.7 of this chapter). Authority to operate such rural subscriber stations is conferred by the authorization of the central office or base station from which they receive service.

**§ 22.705 Rural radiotelephone system configuration.**

Stations in the Rural Radiotelephone Service are authorized to communicate as follows:

(a) Rural subscriber stations are authorized to communicate with and through the central office station(s) with which they are associated. However, where the establishment of a central office station in this service is not feasible, rural subscriber stations may be authorized to communicate with and through a base station in the Paging and Radiotelephone Service.

(b) Central office stations may communicate only with rural subscriber stations.