

§ 22.627**47 CFR Ch. I (10-1-03 Edition)**

Urban area	N. latitude	W. longitude
Dallas, TX	32°47'09.5"	96°47'38.0"
Detroit, MI	42°19'48.1"	83°02'56.7"
Houston, TX	29°45'26.8"	95°21'37.8"
Los Angeles, CA	34°03'15.0"	18°14'31.3"
Miami, FL	25°46'38.6"	80°11'31.2"
New York, NY	40°45'6.4"	73°59'37.5"
Philadelphia, PA	39°56'58.4"	75°09'19.6"
Pittsburgh, PA	40°26'19.2"	79°59'59.2"
San Francisco-Oakland, CA ..	37°46'38.7"	122°24'43.9"
Washington, DC	38°53'51.4"	77°00'31.9"

Note: Coordinates are referenced to North American Datum 1983 (NAD 83).

(2) *Protection from intermodulation interference.* Control transmitter locations must be at least 1.6 kilometers (1 mile) from the main transmitter locations of all TV stations transmitting on TV channels separated by 2, 3, 4, 5, 7, or 8 TV channels from the TV channel containing the frequencies on which the control station will transmit. This requirement is intended to reduce the likelihood of intermodulation interference.

(3) *Co-channel protection from control transmitters with high antennas.* This paragraph applies only to control transmitters that utilize an antenna height of more than 152 meters (500 feet) above average terrain. The distance between the location of such a control transmitter and the applicable protected TV station location specified in this paragraph must equal or exceed the sum of the distance from the control transmitter location to the radio horizon in the direction of the specified location and 89 kilometers (55 miles—representing the distance from the main transmitter location of the TV station to its Grade B contour in the direction of the control transmitter). The protected TV station locations in this paragraph are the locations of record as of September 1974, and these do not change even though the TV stations may have been subsequently relocated.

(i) The protected TV station locations are as follows:

Control transmitter frequency range	Protected TV station location
470–476 MHz.	Washington, DC 38°57'17" 77°00'17"
476–482 MHz.	Lancaster, PA 40°15'45" 76°27'49"

(ii) The distance to the radio horizon is calculated using the following formula:

$$d = \sqrt{17 \times h}$$

where

d is the distance to the radio horizon in kilometers

h is the height of the antenna center of radiation above ground level in meters

[59 FR 59507, Nov. 17, 1994, as amended at 63 FR 68946, Dec. 14, 1998]

§ 22.627 Effective radiated power limits.

The effective radiated power (ERP) of transmitters operating on the channels listed in § 22.621 must not exceed the limits in this section.

(a) *Maximum ERP.* The ERP must not exceed the applicable limits in this paragraph under any circumstances.

Frequency range (MHz)	Maximum ERP (watts)
470–512	1000
928–929	50
932–933	30
941–942	600
952–960	150

(b) *470–512 MHz limits.* The purpose of the rules in paragraphs (b)(1) through (b)(3) of this section 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.

(1) *Co-channel protection.* The ERP of control transmitters must not exceed the limits in the tables in paragraphs (b)(1)(ii) and (b)(1)(iii) of this section. The limits depend upon the height above average terrain of the control transmitter antenna and the distance between the control transmitter and the nearest protected TV station location in paragraph (b)(1)(i) of this section.

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

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Control transmitter frequency range	Protected TV station location
470–476 MHz	Jacksonville, IL, 39°45'52.2" N. Lat. 90°30'29.5" W. Long. Mt. Pleasant, MI, 43°34'24.1" N. Lat. 84°46'21.1" W. Long. Oxford, OH, 39°30'26.2" N. Lat. 84°44' 8.8" W. Long. Washington, DC, 38°57' 17.4" N. Lat. 77°00' 15.9" W. Long. Champaign, IL, 40°04'11.1" N. Lat. 87° 54°45.1" W. Long. Madison, WI, 43°03'01.0" N. Lat. 89°29' 15.4" W. Long. Parkersburg, WV, 39°20'50.3" N. Lat. 81°33' 55.5" W. Long. Fort Wayne, IN, 41°05'35.2" N. Lat. 85°10' 41.9" W. Long. Lancaster, PA, 40°15'45.3" N. Lat. 76°27' 47.9" W. Long. South Bend, IN, 41°36'26.2" N. Lat. 86°27' 48.1" W. Long. Philadelphia, PA, 40°02'30.4" N. Lat. 75°14' 22.6" W. Long. None. Johnstown, PA, 40°19'47.3" N. Lat. 78°53' 44.1" W. Long. Washington, DC, 38°57'49.4" N. Lat. 77°06' 16.9" W. Long. Waterbury, CT, 41°31'2.3" N. Lat. 73°00' 58.4" W. Long.
476–482 MHz	
482–488 MHz	
488–494 MHz	
494–500 MHz	
500–506 MHz	
506–512 MHz	

(ii) Table E-3 and E-4 apply to control transmitters in the New York-Northeastern New Jersey and Cleveland urban areas that transmit on channels in the 476–482 MHz range and to control transmitters in the Detroit urban area that transmit on channels in the 482–488 MHz range.

(iii) Tables E-5 and E-6 apply to all control transmitters except those to which Tables E-3 and E-4 apply.

(2) *Adjacent channel protection.* The ERP of control transmitters must not exceed the limits in Table E-7. The limits depend upon the height above average terrain of the control transmitter antenna and the distance between the control transmitter and the nearest protected TV station location listed in this paragraph. 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.. Madison, WI, 43°03'01.0" N. Lat. 89°29'15.4" W. Long.. Champaign, IL, 40°04'11.1" N. Lat. 87°54'45.1" W. Long.. San Diego, CA, 32°41'48.2" N. Lat. 116°56'13.1" W. Long.. Lancaster, PA, 40°15'45.3" N. Lat. 76°27'47.9" W. Long.. Parkersburg, WV, 39°20'50.3" N. Lat. 81°33'55.5" W. Long.. South Bend, IN, 41°36'26.2" N. Lat. 86°27'48.1" W. Long.. Pittsburgh, PA, 40°26'46.2" N. Lat. 79°57'50.2" W. Long.. Mt. Pleasant, MI, 43°34'24.1" N. Lat. 84°46'21.1" W. Long.. Scranton, PA, 41°10'58.3" N. Lat. 75°52'19.7" W. Long.. Hanover, NH, 43°42'30.3" N. Lat. 72°09'14.3" W. Long.. Fort Wayne, IN, 41°05'35.2" N. Lat. 85°10'41.9" W. Long.. Salisbury, MD, 38°24'15.4" N. Lat. 75°34'43.7" W. Long.. Philadelphia, PA, 40°02'30.4" N. Lat. 75°14'22.6" W. Long.. Washington, DC, 38°57'17.4" N. Lat. 77°00'15.9" W. Long.. Harrisburg, PA, 40°20'44.3" N. Lat. 76°52'07.9" W. Long..	(15) (15) (15) (15) (15) (15) (16) (16) (16) (15) (15) (15) (15) (15) (17) (20) (21)
476–482 MHz.		
482–488 MHz.		
488–494 MHz.		
494–500 MHz.		
500–506 MHz.		
506–512 MHz.		

(c) *Los Angeles area.* This paragraph applies only to control transmitters in the Los Angeles urban area that utilize an antenna height of 457 or more meters (1500 or more feet) above mean sea

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level. The ERP of such transmitters must not exceed the following limits:

Antenna height	ERP
AMSL in meters (feet)	(Watts)
457 (1500) to 610 (2000)	155
611 (2001) to 762 (2500)	100

TABLE E-3—MAXIMUM ERP (WATTS) FOR CONTROL 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 § 22.627(b)(1)(ii). 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-4—MAXIMUM ERP (WATTS) FOR CONTROL 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 § 22.627(b)(1)(ii). 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-5—MAXIMUM ERP (WATTS) FOR CONTROL 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

AAAAA See § 22.627(b)(1)(iii). 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.

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TABLE E-6—MAXIMUM ERP (WATTS) FOR CONTROL 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
209 (130)	100	48	21	11	7	5
193 (120)	50	19	9	5	3	2

AAAAA See § 22.627(b)(1)(iii). 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-7—MAXIMUM ERP (WATTS) FOR CONTROL TRANSMITTERS

Distance to protected TV station in kilometers (miles)	Antenna height above average terrain in meters (feet)								
	30 (100)	46 (150)	61 (200)	76 (250)	91 (300)	107 (350)	122 (400)	137 (450)	152 (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 § 22.627(b)(2). This table applies to control transmitters in the Boston, Chicago, Cleveland, Detroit, Los Angeles, New York-Northeastern New Jersey, Philadelphia, Pittsburgh and Washington, DC 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; 60 FR 9890, Feb. 22, 1995; 63 FR 68946, Dec. 14, 1998]

470-512 MHZ TRUNKED MOBILE OPERATION

§ 22.651 470-512 MHz channels for trunked mobile operation.

The following channels are allocated for assignment to transmitters providing trunked public mobile service within the specified urban areas. All channels have a bandwidth of 20 kHz and are designated by their center frequencies in MegaHertz.

Houston

488.0125	491.0125	488.0875	491.0875
488.0375	491.0375	488.1125	491.1125
488.0625	491.0625	488.1375	491.1375

New York-Northern New Jersey

473.0125	479.0125	473.1625	479.1625
473.0375	479.0375	473.1875	479.1875
473.0625	479.0625	473.2125	479.2125
473.0875	479.0875	473.2375	479.2375
473.1125	479.1125	473.2625	479.2625
473.1375	479.1375	473.2875	479.2875

[59 FR 59507, Nov. 17, 1994; 60 FR 9891, Feb. 22, 1995]

§ 22.653 Eligibility.

Only licensees already authorized to provide trunked mobile service or their successors in interest are eligible to apply for additional use of these channels for trunked mobile service, and then only in the urban areas already authorized.

§ 22.655 Channel usage.

The FCC is redesignating the public mobile channels in the 470-512 MHz range from trunked mobile operation to point-to-multipoint operation as the demand for trunked mobile service decreases.

(a) The licensees in each market shall measure channel usage at least once every 3 months. These measurements shall be reported to the FCC within 30 days. Measurements shall be taken during the busiest 12-hour periods on 3 days (within a 7-day period) having normal usage. The information must be reported separately for each of the 3 days selected, must be reported by dates, and must disclose the following: