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any commercially manufactured radiating transmission line when the transmission line is terminated in a non-radiating load and is routed at least 7 meters (20 feet) interior to the edge of any structure or is routed below ground level.

(4) Sea-based stations may utilize antennas mounted not more than 7 meters (20 feet) above a man-made supporting structure, including antenna structures.

(5) Continuous carrier operations are prohibited on these frequencies.

(6) Unless specified elsewhere in this part, licensees as of August 5, 1999, licensed for operations with an emission designator wider than 11.25 kHz on low power frequencies that are subject to an authorized bandwidth of 11.25 kHz, may obtain primary status with respect to co-channel licensees by supplying their coordinates to the Commission. These licensees will continue to operate on a secondary basis with respect to adjacent channel licensees. Additionally, these licensees may continue to operate with an authorized bandwidth wider than 11.25 kHz on such low power frequencies, subject to the provisions of § 90.209(b) of this chapter.

(7) Unless specified elsewhere in this part, licensees as of August 5, 1999, licensed for operations with an emission designator wider than 11.25 kHz on frequencies that are subject to an authorized bandwidth of 11.25 kHz, which are not low power frequencies, may obtain primary status with respect to co-channel licensees by modifying their license to low power frequencies, supplying their coordinates to the Commission, and otherwise complying with the conditions of paragraphs (b) through (g) of this section. These licensees will continue to operate on a secondary basis with respect to adjacent channel licensees. Additionally, these licensees may continue to operate with an authorized bandwidth wider than 11.25 kHz on such low power frequencies, subject to the provisions of § 90.209(b) of this chapter.

(8) Applicants proposing to operate with an authorized bandwidth wider than 11.25 kHz, on low power frequencies that are subject to an authorized bandwidth of 11.25 kHz, may be licensed on a secondary, non-inter-

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ference basis. Such applicants are subject to the conditions of paragraphs (b) through (g) of this section and the provisions of § 90.209(b) of this chapter.

[68 FR 19461, Apr. 21, 2003; 68 FR 55319, Sept. 25, 2003, as amended at 69 FR 4254, Jan. 29, 2004; 75 FR 19284, Apr. 14, 2010]

§ 90.269 Use of frequencies for self-powered vehicle detectors.

(a) Frequencies subject to § 90.20(d)(22) may be used for the operation of self-powered vehicle detectors by licensees of base/mobile stations in the Public Safety Pool in accordance with the following conditions:

(1) All stations are limited to 100 milliwatts carrier power and 20K00F7W, 20K00F7X, 20K00F8W, 20K00F8X, 20K00F9W or 20K00F9X emissions. The frequency deviation shall not exceed 5 kHz. No more than two 30 ms. pulses may be emitted for each vehicle sensed.

(2) The transmitters must be crystal controlled with a frequency tolerance of plus or minus .005% from -20° to plus 50° C. They must be certificated.

(3) The total length of the transmission line plus antenna may not exceed one-half wavelength and must be integral with the unit.

(4) All operation shall be on a secondary, non-interference basis.

(b) [Reserved]

[48 FR 54982, Dec. 8, 1983, as amended at 54 FR 38681, Sept. 20, 1989; 62 FR 18929, Apr. 17, 1997; 63 FR 36610, July 7, 1998]

§ 90.273 Availability and use of frequencies in the 421–430 MHz band.

The frequency bands 422.1875–425.4875 MHz and 427.1875–429.9875 MHz are available for use in the Detroit, Michigan and Cleveland, Ohio areas. The bands 423.8125–425.4875 MHz and 428.8125–429.9875 MHz are available for use in the Buffalo, New York area. Sections 90.273 through 90.281 address the specific rules applicable to these bands. Use of these bands is also subject to the general technical standards and application procedures contained in other subparts of part 90. The technical standards applicable in this band are the same as those contained in subpart I of part 90 for the 450–470 MHz band.

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Private land mobile use of these frequencies is subject to accepting any interference from Federal Government radiolocation operations.

(a) The following tables list frequencies available for assignment in the Public Safety and Industrial/Business Pools as indicated. In the tables, the Public Safety Pool frequencies are denoted as "PS" and the Industrial/Business Pool frequencies are denoted as "IB." The frequencies 422.19375 MHz through 424.99375 MHz are paired with frequencies 427.19375 MHz through 429.99375 MHz, respectively. Only the lower half of each frequency pair, available for base station operation, is listed in the tables. Corresponding mobile and control station frequencies are 5 MHz higher than the base station frequency. The frequencies 425.000 through 425.48125 are unpaired and are available for either single frequency dispatch or paging operations.

TABLE 1—CHANNELS AVAILABLE IN DETROIT AND CLEVELAND AREAS ONLY—Continued

TABLE 1—CHANNELS AVAILABLE IN DETROIT AND CLEVELAND AREAS ONLY

Frequency (MHz)	Pool in which assigned
Paired channels:	
422.19375 *	IB
422.200	IB
422.20625 *	IB
422.21250	IB
422.21875 *	IB
422.225	IB
422.23125 *	IB
422.23750	IB
422.24375 *	IB
422.250	IB
422.25625 *	IB
422.26250	IB
422.26875 *	IB
422.275	IB
422.28125 *	IB
422.28750	IB
422.29375 *	IB
422.300	IB
422.30625 *	IB
422.31250	IB
422.31875 *	IB
422.325	IB
422.33125 *	IB
422.33750	IB
422.34375 *	IB
422.350	IB
422.35625 *	IB
422.36250	IB
422.36875 *	IB
422.375	IB
422.38125 *	IB
422.38750	IB
422.39375 *	IB
422.400	IB
422.40625 *	IB
422.41250	IB
422.41875 *	IB

Frequency (MHz)	Pool in which assigned
422.425	IB
422.43125 *	IB
422.43750	IB
422.44375 *	IB
422.450	IB
422.45625 *	IB
422.46250	IB
422.46875 *	IB
422.475	IB
422.48125 *	IB
422.48750	IB
422.49375 *	IB
422.500	IB
422.50625 *	IB
422.51250	IB
422.51875 *	IB
422.525	IB
422.53125 *	IB
422.53750	IB
422.54375 *	IB
422.550	IB
422.55625 *	IB
422.56250	IB
422.56875 *	IB
422.575	IB
422.58125 *	IB
422.58750	IB
422.59375 *	IB
422.600	IB
422.60625 *	IB
422.61250	IB
422.61875 *	IB
422.625	IB
422.63125 *	IB
422.63750	IB
422.64375 *	IB
422.650	IB
422.65625 *	IB
422.66250	IB
422.66875 *	IB
422.675	IB
422.68125 *	IB
422.68750	IB
422.69375 *	IB
422.700	IB
422.70625 *	IB
422.71250	IB
422.71875 *	IB
422.725	IB
422.73125 *	IB
422.73750	IB
422.74375 *	IB
422.750	IB
422.75625 *	IB
422.76250	IB
422.76875 *	IB
422.775	IB
422.78125 *	IB
422.78750	IB
422.79375 *	IB
422.800	IB
422.80625 *	IB
422.81250	IB
422.81875 *	IB
422.825	IB
422.83125 *	IB
422.83750	IB
422.84375 *	IB
422.850	IB
422.85625 *	IB

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TABLE 1—CHANNELS AVAILABLE IN DETROIT AND CLEVELAND AREAS ONLY—Continued

TABLE 1—CHANNELS AVAILABLE IN DETROIT AND CLEVELAND AREAS ONLY—Continued

Frequency (MHz)	Pool in which assigned
422.86250	IB
422.86875 *	IB
422.875	IB
422.88125 *	IB
422.88750	IB
422.89375 *	IB
422.900	IB
422.90625 *	IB
422.91250	IB
422.91875 *	IB
422.925	IB
422.93125 *	IB
422.93750	IB
422.94375 *	IB
422.950	IB
422.95625 *	IB
422.96250	IB
422.96875 *	IB
422.975	IB
422.98125 *	IB
422.98750	IB
422.99375 *	IB
423.000	PS
423.00625 *	PS
423.01250	PS
423.01875 *	PS
423.025	PS
423.03125 *	PS
423.03750	PS
423.04375 *	PS
423.050	PS
423.05625 *	PS
423.06250	PS
423.06875 *	PS
423.075	PS
423.08125 *	PS
423.08750	PS
423.09375 *	PS
423.100	PS
423.10625 *	PS
423.11250	PS
423.11875 *	PS
423.125	PS
423.13125 *	PS
423.13750	PS
423.14375 *	PS
423.150	PS
423.15625 *	PS
423.16250	PS
423.16875 *	PS
423.175	PS
423.18125 *	PS
423.18750	PS
423.19375 *	PS
423.200	PS
423.20625 *	PS
423.21250	PS
423.21875 *	PS
423.225	PS
423.23125 *	PS
423.23750	PS
423.24375 *	PS
423.250	PS
423.25625 *	PS
423.26250	PS
423.26875 *	PS
423.275	PS
423.28125 *	PS
423.28750	PS
423.29375 *	PS

Frequency (MHz)	Pool in which assigned
423.300	PS
423.30625 *	PS
423.31250	PS
423.31875 *	PS
423.325	PS
423.33125 *	PS
423.33750	PS
423.34375 *	PS
423.350	PS
423.35625 *	PS
423.36250	PS
423.36875 *	PS
423.375	PS
423.38125 *	PS
423.38750	PS
423.39375 *	PS
423.400	PS
423.40625 *	PS
423.41250	PS
423.41875 *	PS
423.425	PS
423.43125 *	PS
423.43750	PS
423.44375 *	PS
423.450	PS
423.45625 *	PS
423.46250	PS
423.46875 *	PS
423.475	PS
423.48125 *	PS
423.48750	PS
423.49375 *	PS
423.500	PS
423.50625 *	PS
423.51250	PS
423.51875 *	PS
423.525	PS
423.53125 *	PS
423.53750	PS
423.54375 *	PS
423.550	PS
423.55625 *	PS
423.56250	PS
423.56875 *	PS
423.575	PS
423.58125 *	PS
423.58750	PS
423.59375 *	PS
423.600	PS
423.60625 *	PS
423.61250	PS
423.61875 *	PS
423.625	PS
423.63125 *	PS
423.63750	PS
423.64375 *	PS
423.650	PS
423.65625 *	PS
423.66250	PS
423.66875 *	PS
423.675	PS
423.68125 *	PS
423.68750	PS
423.69375 *	PS
423.700	PS
423.70625 *	PS
423.71250	PS
423.71875 *	PS
423.725	PS
423.73125 *	PS

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TABLE 1—CHANNELS AVAILABLE IN DETROIT AND CLEVELAND AREAS ONLY—Continued

Frequency (MHz)	Pool in which assigned
423.73750	PS
423.74375 *	PS
423.750	PS
423.75625 *	PS
423.76250	PS
423.76875 *	PS
423.775	PS
423.78125 *	PS
423.78750	PS
423.79375 *	PS
423.800	PS
423.80625 *	PS

* This frequency will be assigned with an authorized bandwidth not to exceed 6 kHz.

TABLE 2—CHANNELS AVAILABLE IN BUFFALO, DETROIT AND CLEVELAND AREAS

Frequency (MHz)	Pool in which assigned
Paired channels:	
423.81875 *	PS
423.825	PS
423.83125 *	PS
423.83750	PS
423.84375 *	PS
423.850	PS
423.85625 *	PS
423.86250	PS
423.86875 *	PS
423.875	PS
423.88125 *	PS
423.88750	PS
423.89375 *	PS
423.900	PS
423.90625 *	PS
423.91250	PS
423.91875 *	PS
423.925	PS
423.93125 *	PS
423.93750	PS
423.94375 *	PS
423.950	PS
423.95625 *	PS
423.96250	PS
423.96875 *	PS
423.975	PS
423.98125 *	PS
423.98750	PS
423.99375 *	PS
424.000	PS
424.00625 *	PS
424.01250	PS
424.01875 *	PS
424.025	PS
424.03125 *	PS
424.03750	PS
424.04375 *	PS
424.050	PS
424.05625 *	PS
424.06250	PS
424.06875 *	PS
424.075	PS
424.08125 *	PS
424.08750	PS
424.09375 *	PS
424.100	PS
424.10625 *	PS

TABLE 2—CHANNELS AVAILABLE IN BUFFALO, DETROIT AND CLEVELAND AREAS—Continued

Frequency (MHz)	Pool in which assigned
424.11250	PS
424.11875 *	PS
424.125	PS
424.13125 *	PS
424.13750	PS
424.14375 *	PS
424.150	PS
424.15625 *	PS
424.16250	PS
424.16875 *	PS
424.175	PS
424.18125 *	PS
424.18750	PS
424.19375 *	PS
424.200	PS
424.20625 *	PS
424.21250	PS
424.21875 *	PS
424.225	PS
424.23125 *	PS
424.23750	PS
424.24375 *	PS
424.250	PS
424.25625 *	PS
424.26250	PS
424.26875 *	PS
424.275	PS
424.28125 *	PS
424.28750	PS
424.29375 *	PS
424.300	PS
424.30625 *	PS
424.31250	PS
424.31875 *	PS
424.325	PS
424.33125 *	PS
424.33750	PS
424.34375 *	PS
424.350	PS
424.35625 *	PS
424.36250	PS
424.36875 *	PS
424.375	PS
424.38125 *	PS
424.38750	PS
424.39375 *	PS
424.400	IB
424.40625 *	IB
424.41250	IB
424.41875 *	IB
424.425	IB
424.43125 *	IB
424.43750	IB
424.44375 *	IB
424.450	IB
424.45625 *	IB
424.46250	IB
424.46875 *	IB
424.475	IB
424.48125 *	IB
424.48750	IB
424.49375 *	IB
424.500	IB
424.50625 *	IB
424.51250	IB
424.51875 *	IB
424.525	IB
424.53125 *	IB
424.53750	IB
424.54375 *	IB

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TABLE 2—CHANNELS AVAILABLE IN BUFFALO, DETROIT AND CLEVELAND AREAS—Continued

TABLE 2—CHANNELS AVAILABLE IN BUFFALO, DETROIT AND CLEVELAND AREAS—Continued

Frequency (MHz)	Pool in which assigned
424.550	IB
424.55625*	IB
424.56250	IB
424.56875*	IB
424.575	IB
424.58125*	IB
424.58750	IB
424.59375*	IB
424.600	IB
424.60625*	IB
424.61250	IB
424.61875*	IB
424.625	IB
424.63125*	IB
424.63750	IB
424.64375*	IB
424.650	IB
424.65625*	IB
424.66250	IB
424.66875*	IB
424.675	IB
424.68125*	IB
424.68750	IB
424.69375*	IB
424.700	IB
424.70625*	IB
424.71250	IB
424.71875*	IB
424.725	IB
424.73125*	IB
424.73750	IB
424.74375*	IB
424.750	IB
424.75625*	IB
424.76250	IB
424.76875*	IB
424.775	IB
424.78125*	IB
424.78750	IB
424.79375*	IB
424.800	IB
424.80625*	IB
424.81250	IB
424.81875*	IB
424.825	IB
424.83125*	IB
424.83750	IB
424.84375*	IB
424.850	IB
424.85625*	IB
424.86250	IB
424.86875*	IB
424.875	IB
424.88125*	IB
424.88750	IB
424.89375*	IB
424.900	IB
424.90625*	IB
424.91250	IB
424.91875*	IB
424.925	IB
424.93125*	IB
424.93750	IB
424.94375*	IB
424.950	IB
424.95625*	IB
424.96250	IB
424.96875*	IB
424.975	IB
424.98125*	IB

Frequency (MHz)	Pool in which assigned
424.98750	IB
424.99375*	IB
Single channels:	
425.000	IB
425.00625*	IB
425.01250	IB
425.01875*	IB
425.025	IB
425.03125*	IB
425.03750	IB
425.04375*	IB
425.050	IB
425.05625*	IB
425.06250	IB
425.06875*	IB
425.075	IB
425.08125*	IB
425.08750	IB
425.09375*	IB
425.100	IB
425.10625*	IB
425.11250	IB
425.11875*	IB
425.125	IB
425.13125*	IB
425.13750	IB
425.14375*	IB
425.150	IB
425.15625*	IB
425.16250	IB
425.16875*	IB
425.175	IB
425.18125*	IB
425.18750	IB
425.19375*	IB
425.200	IB
425.20625*	IB
425.21250	IB
425.21875*	IB
425.225	IB
425.23125*	IB
425.23750	IB
425.24375*	IB
425.250	PS
425.25625*	PS
425.26250	PS
425.26875*	PS
425.275	PS
425.28125*	PS
425.28750	PS
425.29375*	PS
425.300	PS
425.30625*	PS
425.31250	PS
425.31875*	PS
425.325	PS
425.33125*	PS
425.33750	PS
425.34375*	PS
425.350	PS
425.35625*	PS
425.36250	PS
425.36875*	PS
425.375	PS
425.38125*	PS
425.38750	PS
425.39375*	PS
425.400	PS
425.40625*	PS
425.41250	PS

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TABLE 2—CHANNELS AVAILABLE IN BUFFALO, DETROIT AND CLEVELAND AREAS—Continued

Frequency (MHz)	Pool in which assigned
425.41875*	PS
425.425	PS
425.43125*	PS
425.43750	PS
425.44375*	PS
425.450	PS
425.45625*	PS
425.46250	PS
425.46875*	PS
425.475	PS
425.48125*	PS

* This frequency will be assigned with an authorized bandwidth not to exceed 6 kHz.

(b) [Reserved]

(c) Base or control stations shall be located within 48 km (30 miles) of the center of Buffalo or 80 km (50 miles) of the center of Detroit. In Cleveland, base or control stations will be allowed at locations north of line A that are within 48 km (30 miles) of the city center. In addition, low power (2 watts or less) base stations may locate within 80 km (50 miles) of the center of Buffalo. The following coordinates shall be used for the centers of these areas (coordinates are referenced to North American Datum 1983 (NAD83)):

Buffalo,	42°52'52.2" North latitude.
NY,	78°52'20.1" West longitude.
Cleveland,	41°29'51.2" North latitude.
OH,	81°41'49.5" West longitude.
Detroit,	42°19'48.1" North latitude.
MI,	83°02'56.7" West longitude.

(d) Mobile operation shall be confined to within 80 km (50 miles) of the centers of Detroit, Cleveland, or Buffalo.

[52 FR 6156, Mar. 2, 1987, as amended at 54 FR 38681, Sept. 20, 1989; 58 FR 31476, June 3, 1993; 58 FR 44957, Aug. 25, 1993; 60 FR 37269, July 19, 1995; 61 FR 6576, Feb. 21, 1996; 62 FR 18929, Apr. 17, 1997; 63 FR 68965, Dec. 14, 1998]

§ 90.275 Selection and assignment of frequencies in the 421–430 MHz band.

Applicants must specify the frequencies in which the proposed system will operate pursuant to a recommendation by a frequency coordinator certified for the pool in which the requested frequency is assigned.

[62 FR 18932, Apr. 17, 1997]

§ 90.279 Power limitations applicable to the 421–430 MHz band.

(a) Base station authorizations in the 421–430 MHz band will be subject to Effective Radiated Power (ERP) and Effective Antenna Height (EAH) limitations as shown in the table below. ERP is defined as the product of the power supplied to the antenna and its gain relative to a half-wave dipole in a given direction. EAH is calculated by subtracting the Assumed Average Terrain Elevation (AATE) as listed in table 7 of § 90.619 from the antenna height above mean sea level.

LIMITS OF EFFECTIVE RADIATED POWER (ERP) CORRESPONDING TO EFFECTIVE ANTENNA HEIGHTS (EAH) OF BASE STATIONS IN THE 421–430 MHz BAND

Effective antenna height (EAH) in meters (feet)	Maximum effective radiated power (ERP) (watts)
0–152 (0–500)	250
Above 152–305 (above 500–1000)	150
Above 305–457 (above 1000–1500)	75
Above 457–610 (above 1500–2000)	40
Above 610–762 (above 2000–2500)	20
Above 762–914 (above 2500–3000)	15
Above 914–1219 (above 3000–4000)	10
Above 1219 (above 4000)	5

(b) The maximum transmitter power output that will be authorized for control stations is 20 watts.

[52 FR 6157, Mar. 2, 1987, as amended at 58 FR 44957, Aug. 25, 1993]

§ 90.281 Restrictions on operational fixed stations in the 421–430 MHz band.

(a) Except for control stations, operational fixed facilities will not be authorized in the 421–430 MHz band. This does not preclude secondary fixed tone signaling and alarm operations authorized in § 90.235.

(b) Control stations associated with one or more mobile relay stations will be authorized only on the assigned frequency of the associated mobile station. Use of a mobile service frequency by a control station of a mobile relay system is subject to the condition that harmful interference shall not be