

# Federal Communications Commission

# § 24.134

Antenna HAAT in meters (feet) (see § 24.53 for HAAT HAAT calculation method)	Effective radiated power (e.r.p.) (watts)
183 (600) and below .....	3500
183 (600) to 208 (682) .....	3500 to 2584
208 (682) to 236 (775) .....	2584 to 1883
236 (775) to 268 (880) .....	1883 to 1372
268 (880) to 305 (1000) .....	1372 to 1000
305 (1000) to 346 (1137) .....	1000 to 729
346 (1137) to 394 (1292) .....	729 to 531
394 (1292) to 447 (1468) .....	531 to 387
447 (1468) to 508 (1668) .....	387 to 282
508 (1668) to 578 (1895) .....	282 to 206
578 (1895) to 656 (2154) .....	206 to 150
656 (2154) to 746 (2447) .....	150 to 109
746 (2447) to 848 (2781) .....	109 to 80
848 (2781) to 963 (3160) .....	80 to 58
963 (3160) to 1094 (3590) .....	58 to 42
1094 (3590) to 1244 (4080) .....	42 to 31
1244 (4080) to 1413 (4636) .....	31 to 22
Above 1413 (4636) .....	16

(2) For heights between the values listed in the table, linear interpolation shall be used to determine maximum e.r.p.

(e) MTA and regional base stations located less than 80 kilometers (50 miles) from the licensed service area border must limit their effective radiated power in accordance with the following formula:

$$PW = 0.0175 \times dkm^* \times 6.6666 \times x \text{ hm}^* - 3.1997$$

PW is effective radiated power in watts

dkm is distance in kilometers

hm is antenna HAAT in meters; see § 24.53 for HAAT calculation method

(f) All power levels specified in this section are expressed in terms of the maximum power, averaged over a 100 millisecond interval, when measured with instrumentation calibrated in terms of an rms-equivalent voltage with a resolution bandwidth equal to or greater than the authorized bandwidth.

(g) Additionally, PCS stations will be subject to any power limits imposed by international agreements.

[58 FR 59183, Nov. 8, 1993; 59 FR 15269, Mar. 31, 1994, as amended at 62 FR 27511, May 20, 1997; 65 FR 35853, June 6, 2000]

## § 24.133 Emission limits.

(a) The power of any emission shall be attenuated below the transmitter power (P), as measured in accordance with § 24.132(f), in accordance with the following schedule:

(1) For transmitters authorized a bandwidth greater than 10 kHz:

(i) On any frequency outside the authorized bandwidth and removed from the edge of the authorized bandwidth by a displacement frequency ( $f_d$  in kHz) of up to and including 40 kHz: at least  $116 \text{ Log}_{10} ((f_d+10)/6.1)$  decibels or 50 plus  $10 \text{ Log}_{10} (P)$  decibels or 70 decibels, whichever is the lesser attenuation;

(ii) On any frequency outside the authorized bandwidth and removed from the edge of the authorized bandwidth by a displacement frequency ( $f_d$  in kHz) of more than 40 kHz: at least  $43+10 \text{ Log}_{10} (P)$  decibels or 80 decibels, whichever is the lesser attenuation.

(2) For transmitters authorized a bandwidth of 10 kHz:

(i) On any frequency outside the authorized bandwidth and removed from the edge of the authorized bandwidth by a displacement frequency ( $f_d$  in kHz) of up to and including 20 kHz: at least  $116 \times \text{Log}_{10} ((f_d+5)/3.05)$  decibels or  $50+10 \times \text{Log}_{10} (P)$  decibels or 70 decibels, whichever is the lesser attenuation;

(ii) On any frequency outside the authorized bandwidth and removed from the edge of the authorized bandwidth by a displacement frequency ( $f_d$  in kHz) of more than 20 kHz: at least  $43+10 \text{ Log}_{10} (P)$  decibels or 80 decibels, whichever is the lesser attenuation.

(b) The measurements of emission power can be expressed in peak or average values provided they are expressed in the same parameters as the transmitter power.

(c) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

(d) The following minimum spectrum analyzer resolution bandwidth settings will be used: 300 Hz when showing compliance with paragraphs (a)(1)(i) and (a)(2)(i) of this section; and 30 kHz when showing compliance with paragraphs (a)(1)(ii) and (a)(2)(ii) of this section.

[58 FR 59183, Nov. 8, 1993. Redesignated at 59 FR 18499, Apr. 19, 1994, as amended at 59 FR 14119, Mar. 25, 1994; 66 FR 10968, Feb. 21, 2001]

## § 24.134 Co-channel separation criteria.

The minimum co-channel separation distance between base stations in different service areas is 113 kilometers

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(70 miles). A co-channel separation distance is not required for the base stations of the same licensee or when the affected parties have agreed to other co-channel separation distances.

### § 24.135 Frequency stability.

(a) The frequency stability of the transmitter shall be maintained within  $\pm 0.0001$  percent ( $\pm 1$  ppm) of the center frequency over a temperature variation of  $-30$  °Celsius to  $+50$  °Celsius at normal supply voltage, and over a variation in the primary supply voltage of 85 percent to 115 percent of the rated supply voltage at a temperature of 20 °Celsius.

(b) For battery operated equipment, the equipment tests shall be performed using a new battery without any further requirement to vary supply voltage.

(c) It is acceptable for a transmitter to meet this frequency stability requirement over a narrower temperature range provided the transmitter ceases to function before it exceeds these frequency stability limits.

## Subpart E—Broadband PCS

SOURCE: 59 FR 32854, June 24, 1994, unless otherwise noted.

### § 24.200 Scope.

This subpart sets out the regulations governing the licensing and operations of personal communications services authorized in the 1850–1910 and 1930–1990 MHz bands.

### § 24.202 Service areas.

Broadband PCS service areas are Major Trading Areas (MTAs) and Basic Trading Areas (BTAs) as defined in this section. MTAs and BTAs are based on the Rand McNally 1992 *Commercial Atlas & Marketing Guide*, 123rd Edition, at pages 38–39 (“BTA/MTA Map”). Rand McNally organizes the 50 states and the District of Columbia into 47 MTAs and 487 BTAs. The BTA/MTA Map is available for public inspection at the Office of Engineering and Technology’s Technical Information Center, 445 12th Street, SW, Washington, DC 20554.

(a) The MTA service areas are based on the Rand McNally 1992 *Commercial*

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*Atlas & Marketing Guide*, 123rd Edition, at pages 38–39, with the following exceptions and additions:

(1) Alaska is separated from the Seattle MTA and is licensed separately.

(2) Guam and the Northern Mariana Islands are licensed as a single MTA-like area.

(3) Puerto Rico and the United States Virgin Islands are licensed as a single MTA-like area.

(4) American Samoa is licensed as a single MTA-like area.

(b) The BTA service areas are based on the Rand McNally 1992 *Commercial Atlas & Marketing Guide*, 123rd Edition, at pages 38–39, with the following additions licensed separately as BTA-like areas: American Samoa; Guam; Northern Mariana Islands; Mayagüez/Agua-dilla-Ponce, Puerto Rico; San Juan, Puerto Rico; and the United States Virgin Islands. The Mayagüez/Agua-dilla-Ponce BTA-like service area consists of the following municipios: Adjuntas, Aguada, Aguadilla, Añasco, Arroyo, Cabo Rojo, Coamo, Guánica, Guayama, Guayanilla, Hormigueros, Isabela, Jayuya, Juana Díaz, Lajas, Las Marias, Mayagüez, Maricao, Maunabo, Moca, Patillas, Peñuelas, Ponce, Quebradillas, Rincón, Sabana Grande, Salinas, San Germán, Santa Isabel, Villalba, and Yauco. The San Juan BTA-like service area consists of all other municipios in Puerto Rico.

[59 FR 32854, June 24, 1994; 59 FR 40835, Aug. 10, 1994; 63 FR 68952, Dec. 14, 1998; 65 FR 53636, Sept. 5, 2000]

### § 24.203 Construction requirements.

(a) Licensees of 30 MHz blocks must serve with a signal level sufficient to provide adequate service to at least one-third of the population in their licensed area within five years of being licensed and two-thirds of the population in their licensed area within ten years of being licensed. Licensees may, in the alternative, provide substantial service to their licensed area within the appropriate five- and ten-year benchmarks. Licensees may choose to define population using the 1990 census or the 2000 census. Failure by any licensee to meet these requirements will result in forfeiture or non-renewal of the license and the licensee will be ineligible to regain it.