

§ 87.111

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was experienced, the character, radio frequency and identification of the interfering signal.

(9) A brief description of interruption to communications due to equipment failure or other troubles, giving the duration of the interruption and action taken.

(10) Such additional information as may be considered by the operator to be of value as part of the record of the stations operations.

(c) Stations maintaining written logs must also enter the signature of each operator, with the time the operator assumes and relinquishes a watch.

[69 FR 32879, June 14, 2004]

§ 87.111 Suspension or discontinuance of operation.

The licensee of any airport control tower station or radionavigation land station must notify the nearest FAA regional office upon the temporary suspension or permanent discontinuance of the station. The FAA regional office must be notified again when service resumes.

[69 FR 32880, June 14, 2004]

Subpart D—Technical Requirements

§ 87.131 Power and emissions.

The following table lists authorized emissions and maximum power. Power must be determined by direct measurement.

| Class of station | Frequency band/ frequency | Authorized emission(s) ⁹ | Maximum power ¹ |
|--|----------------------------|---|----------------------------|
| Aeronautical advisory | VHF | A3E | 10 watts. ¹⁰ |
| Aeronautical multicom | VHF | A3E | 10 watts. |
| Aeronautical enroute and aeronautical fixed. | HF | R3E, H3E, J3E, J7B, H2B, J2D | 6 kw. |
| | HF | A1A, F1B, J2A, J2B | 1.5 kw. |
| | VHF | A3E, A9W G1D, A2D. | |
| Aeronautical search and rescue | VHF | A3E | 10 watts. |
| | HF | R3E, H3E, J3E | 100 watts. |
| Operational fixed | VHF | G3E, F2D | 30 watts. |
| Flight test land | VHF | A3E | 200 watts. |
| | UHF | F2D, F9D, F7D | 25 watts. ³ |
| | HF | H2B, J3E, J7D, J9W | 6.0 kw. |
| Aviation support | VHF | A3E | 50 watts. |
| Airport control tower | VHF | A3E, G1D, G7D | 50 watts. |
| | Below 400 kHz ... | A3E | 15 watts. |
| Aeronautical utility mobile | VHF | A3E | 10 watts. |
| Radionavigation land test | 108.150 MHz | A9W | 1 milliwatt. |
| | 334.550 MHz | A1N | 1 milliwatt. |
| | Other VHF | M1A, XXA, A1A, A1N, A2A, A2D, A9W ... | 1 watt. |
| | Other UHF | M1A, XXA, A1A, A1N, A2A, A2D, A9W ... | 1 watt. |
| | 5031.0 MHz | F7D | 1 watt. |
| Radionavigation land | Various ⁴ | Various ⁴ | Various. ⁴ |
| Aeronautical Frequencies | | | |
| Aircraft (Communication) | UHF | F2D, F9D, F7D | 25 watts. |
| | VHF | A3E, A9W, G1D, G7D, A2D | 55 watts. |
| | HF | R3E, H3E, J3E, J7B, H2B, J7D, J9W | 400 watts. |
| | HF | A1A, F1B, J2A, J2B | 100 watts. |
| Marine Frequencies ⁵ | | | |
| | 156.300 MHz | G3E | 5 watts. |
| | 156.375 MHz | G3E | 5 watts. |
| | 156.400 MHz | G3E | 5 watts. |
| | 156.425 MHz | G3E | 5 watts. |
| | 156.450 MHz | G3E | 5 watts. |
| | 156.625 MHz | G3E | 5 watts. |
| | 156.800 MHz | G3E | 5 watts. |
| | 156.900 MHz | G3E | 5 watts. |
| | 157.425 MHz | G3E | 5 watts. |
| | HF ⁶ | R3E, H3E, J3E, J2B, F1B, A3E | 1000 watts. |
| | | | 250 watts. |
| | MF ⁶ | R3E, H3E, J3E, J2B, F1B | 1000 watts. |

| Class of station | Frequency band/ frequency | Authorized emission(s) ⁹ | Maximum power ¹ |
|-------------------------|------------------------------|-------------------------------------|----------------------------|
| (Radionavigation) | HF ⁶ | A3E | 250 watts. |
| Aircraft earth | Various ⁷ | Various ⁷ | Various. ⁷ |
| Differential GPS | UHF | G1D, G1E, G1W | 60 watts. ⁸ |
| | VHF | G7D | Various. ² |

¹ The power is measured at the transmitter output terminals and the type of power is determined according to the emission designator as follows:
 (i) Mean power (pY) for amplitude modulated emissions and transmitting both sidebands using unmodulated full carrier.
 (ii) Peak envelope power (pX) for all emission designators other than those referred to in paragraph (i) of this note.
² Power and antenna height are restricted to the minimum necessary to achieve the required service.
³ Transmitter power may be increased to overcome line and duplexer losses but must not exceed 25 watts delivered to the antenna.
⁴ Frequency, emission, and maximum power will be determined after coordination with appropriate Government agencies.
⁵ To be used with airborne marine equipment certified for part 80 (ship) and used in accordance with part 87.
⁶ Applicable only to marine frequencies used for public correspondence.
⁷ Frequency, emission, and maximum power will be determined by appropriate standards during the certification process.
⁸ Power may not exceed 60 watts per carrier, as measured at the input of the antenna subsystem, including any installed diplexer. The maximum EIRP may not exceed 2000 watts per carrier.
⁹ Excludes automatic link establishment.
¹⁰ Power is limited to 0.5 watt, but may not exceed 2 watts when station is used in an automatic unattended mode.

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§ 87.133 Frequency stability.

(a) Except as provided in paragraphs (c), (d), (f), and (g) of this section, the carrier frequency of each station must be maintained within these tolerances:

| Frequency band (lower limit exclusive, upper limit inclusive), and categories of stations | Tolerance ¹ | Tolerance ² |
|---|------------------------|------------------------|
| (1) Band-9 to 535 kHz: Aeronautical stations | 100 | 100 |
| Aircraft stations | 200 | 100 |
| Survival craft stations on 500 kHz. | 5,000 | 20 Hz ³ |
| Radionavigation stations | 100 | 100 |
| (2) Band-1605 to 4000 kHz: Aeronautical fixed stations: Power 200 W or less | 100 | 100 ⁸ |
| Power above 200 W | 50 | 50 ⁸ |
| Aeronautical stations: Power 200 W or less | 100 ⁷ | 100 ^{7 8} |
| Power above 200 W | 50 ⁷ | 50 ^{7 8} |
| Aircraft stations | 100 ⁷ | 100 ⁷ |
| Survival craft stations on 2182 kHz. | 200 | 20 Hz ³ |
| (3) Band-4 to 29.7 MHz: Aeronautical fixed stations: Power 500 W or less | 50 | |
| Power above 500 W | 15 | |
| Single-sideband and Independent-sideband emission: Power 500 W or less | | 50 Hz |
| Power above 500 W | | 20 Hz |
| Class F1B emissions | | 10 Hz |
| Other classes of emission: Power 500 W or less | | 20 |
| Power above 500 W | | 10 |
| Aeronautical stations: Power 500 W or less | 7 100 | 100 ⁷ |
| Power above 500 W | 7 50 | 50 ⁷ |
| Aircraft stations | 7 100 | 100 ⁷ |
| Survival craft stations on 8364 kHz. | 200 | 50 Hz ³ |
| (4) Band-29.7 to 100 MHz: Aeronautical fixed stations: Power 200 W or less | 50 | |

| Frequency band (lower limit exclusive, upper limit inclusive), and categories of stations | Tolerance ¹ | Tolerance ² |
|---|------------------------|------------------------|
| Power above 200 W | 30 | |
| Power 50 W or less | | 30 |
| Power above 50 W | | 20 |
| Operational fixed stations: 73-74.6 MHz (Power 50 W or less). | 50 | 30 |
| 73-74.6 MHz (Power above 50 W). | 20 | 20 |
| 72-73.0 MHz and 75.4-76.0 MHz. | 5 | 5 |
| Radionavigation stations | 100 | 50 |
| (5) Band-108 to 137 MHz: Aeronautical stations | 4 50 | 12 20 |
| Emergency locator transmitter test stations. | 50 | 50 |
| Survival craft stations on 121.5 MHz. | 50 | 50 |
| Emergency locator stations | 50 | 50 |
| Aircraft and other mobile stations in the Aviation Services. | 5 50 | 13 30 |
| Radionavigation stations | 20 | 20 |
| Differential GPS | | 2 |
| (6) Band-137 to 470MHz: Aeronautical stations | 50 | 20 |
| Survival craft stations on 243 MHz. | 50 | 50 |
| Aircraft stations | 50 ⁵ | 30 ¹⁰ |
| Radionavigation stations | 50 | 50 |
| Emergency locator transmitters on 406 MHz. | N/A | 5 |
| (7) Band-470 to 2450 MHz: Aeronautical stations | 100 | 20 |
| Aircraft stations | 100 | 20 |
| Aircraft earth station | | 320 Hz ¹¹ |
| Radionavigation stations: 470-960 MHz | 500 | 500 |
| 960-1215 MHz | 20 | 20 |
| 1215-2450 MHz | 500 | 500 |
| (8) Band-2450 to 10500 MHz: Radionavigation stations | 6 9 1250 | 1250 ^{6 9} |