§ 87.151 Special requirements for differential GPS receivers.

(a) The receiver shall achieve a message failure rate less than or equal to one failed message per 1000 full-length (222 bytes) application data messages, while operating over a range from −87 dBm to −1 dBm, provided that the variation in the average received signal power between successive bursts in a given time slot shall not exceed 40 dB. Failed messages include those lost by the VHF data receiver system or which do not pass the cyclic redundancy check (CRC) after application of the forward error correction (FEC).

(b) The aircraft receiving antenna can be horizontally or vertically polarized. Due to the difference in the signal strength of horizontally and vertically polarized components of the broadcast signal, the total aircraft implementation loss is limited to 15 dB for horizontally polarized receiving antennas and 11 dB for vertically polarized receiving antennas.

(c) *Desensitization*. The receiver shall meet the requirements specified in paragraph (a) of this section in the presence of VHF-FM broadcast signals in accord with following tables.

(1) Maximum levels of undesired signals.

Frequency [1]	Maximum level of undesired signal at the receiver input (dBm)
50 kHz up to 88 MHz	−13
88 MHz–107.900 MHz	[see paragraph (c)(2)]
108.000 MHz–117.975 MHz	excluded
118MHz	−44
118.025 MHz	−41
118.050 MHz up to 1660.5 MHz.	−13

[1] The relationship is linear between single adjacent points designated by the above frequencies.

(2) Desensitization frequency and power requirements for the frequencies 108.025 MHz to 111.975 MHz.

Frequency [1]	Maximum level of undesired signal at the receiver input (dBm)
88 MHz ≤ f ≤ 102 MHz	15
104 MHz	10
106 MHz	5
107.9 MHz	−10

[1] The relationship is linear between single adjacent points designated by the above frequencies.

(3) Desensitization frequency and power requirements for the frequencies 112.00 MHz to 117.975 MHz.

Frequency [1]	Maximum level of undesired signal at the receiver input (dBm)
88 MHz ≤ f ≤ 104 MHz	15
106 MHz	10
107 MHz	5
107.9 MHz	0

[1] The relationship is linear between single adjacent points designated by the above frequencies.

(d) *Intermodulation Immunity*. The receiver shall meet the requirements specified in paragraph (a) of this section in the presence of interference from two-signal, third order intermodulation products of two VHF-FM broadcast signals having levels in accordance with the following:

(1) $2N_1 + N_2 + 72 \leq 0$ for VHF-FM sound broadcasting signals in the range 107.7–108 MHz; and

(2) $2N_1 + N_2 + 3\ (24 - 20\log \text{delta } f/0.4) \leq 0$ for VHF-FM sound broadcasting signals below 107.7 MHz, where the frequencies of the two VHF-FM sound broadcasting signals produce, within the receiver, a two signal, third-order intermodulation product on the desired VDB frequency.

(3) In the formulas in paragraphs (d)(1) and (d)(2) of this section, N_1 and N_2 are the levels (dBm) of the two VHF FM sound broadcasting signals at the VHF data broadcast (VDB) receiver input. Neither level shall exceed the desensitization criteria set forth in paragraph (c) of this section. Delta $f = 108.1 - f_I$, where f_I is the frequency of N_1, the VHF FM sound broadcasting signal closer to 108.1 MHz.

[69 FR 32881, June 14, 2004]

Subpart E—Frequencies

§ 87.169 Scope.

This subpart contains class of station symbols and a frequency table which lists assignable frequencies. Frequencies in the Aviation Services will transmit communications for the safe, expeditious, and economic operation of aircraft and the protection of life and property in the air. Each class of land

station may communicate in accordance with the particular sections of this part which govern these classes. Land stations in the Aviation Services in Alaska may transmit messages concerning sickness, death, weather, ice conditions or other matters relating to safety of life and property if there is no other established means of communications between the points in question and no charge is made for the communications service.

[69 FR 32882, June 14, 2004]

§ 87.171 Class of station symbols.

The two or three letter symbols for the classes of station in the aviation services are:

Symbol and class of station

AX—Aeronautical fixed
AXO—Aeronautical operational fixed
DGP—Differential GPS
FA—Aeronautical land (unspecified)
FAU—Aeronautical advisory (unicom)
FAC—Airport control tower
FAE—Aeronautical enroute
FAM—Aeronautical multicom
FAP—Civil Air Patrol
FAR—Aeronautical search and rescue
FAS—Aviation support
FAT—Flight test
FAW—Automatic weather observation
GCO—Ground Communication Outlet
MA—Aircraft (Air carrier and Private)
MA1—Air carrier aircraft only
MA2—Private aircraft only
MOU—Aeronautical utility mobile
MRT—ELT test
RCO—Remote Communications Outlet
RL—Radionavigation land (unspecified)
RLA—Marker beacon
RLB—Radiobeacon
RLD—RADAR/TEST
RLG—Glide path
RLL—Localizer
RLO—VHF omni-range
RLS—Surveillance radar
RLT—Radionavigation land test
RLW—Microwave landing system
RNV—Radio Navigation Land/DME
RPC—Ramp Control
TJ—Aircraft earth station in the Aeronautical Mobile-Satellite Service
UAT—Universal Access Transceiver

[53 FR 28940, Aug. 1, 1988, as amended at 57 FR 45750, Oct. 5, 1992; 64 FR 27475, May 20, 1999; 69 FR 32882, June 14, 2004; 71 FR 70676, Dec. 6, 2006]

§ 87.173 Frequencies.

(a) The table in paragraph (b) of this section lists assignable carrier frequencies or frequency bands.

(1) The single letter symbol appearing in the ''Subpart'' column indicates the subpart of this part which contains additional applicable regulations.

(2) The two or three letter symbol appearing in the ''Class of Station'' column indicates the class of station to which the frequency is assignable.

(b) Frequency table:

[53 FR 28940, Aug. 1, 1988, as amended at 54 FR 11719, Mar. 22, 1989; 54 FR 49995, Dec. 4, 1989; 55 FR 4175, Feb. 7, 1990; 57 FR 45749, Oct. 5, 1992; 64 FR 27474, May 20, 1999; 69 FR 32879, June 14, 2004; 71 FR 70676, Dec. 6, 2006]