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Selecting the Right Antenna For Your Marine Radio

September 1, 2010 by Captain Vincent Pica · Leave a Comment

Mastering the language of marine radios earns you respect on the water (and may speed help when needed). But the answer to the question "Is that all there is?" is "no."

Without a good antenna, your radio isn't more useful than a paper weight. Each antenna notes how many "dBs" (decibels) of "gain" it has, which is a very important element in selecting an antenna. Gain, for the private boater, usually comes in ranges from 3dBs to 9dBs.

Gain is the measure of how focused the antenna is in taking the signal from the radio and, at a given wattage, shaping the laser beam of energy that it sends to the horizon. The higher the dBs, the more the laser beam of energy is focused and straight, rather than being spread out like a flashlight. Greater focus creates more effective power, so that more of the wattage gets turned into distance over the water, important if you need to send out a "may day."

In the laser versus flashlight analogy, imagine illuminating a buoy at night. In that case, you use a flashlight because you don't know exactly where the buoy is and you need a wide beam of light to find it. But that widespread light comes at the sacrifice of power and distance. Oddly, radio gain is just like that.

All of the power coming out of the radio has to go somewhere. Looking at it mathematically, 10 x 10 = 100, as does 50 x 2. High gain creates a focused beam (50 x 2) while lower gain creates the wider footprint (10 x 10). While both examples result in 100, if 50 is the distance, that is surely better than 10. Unless, like a flashlight, you need spread; then 10 is better than two!

When a boat is rocking and rises on the crest of a wave, a high gain (50 x 2) antenna is going to send that radio beam into outer space. On the way down, the beam is firing into the back of the wave ahead of it. In this scenario, high gain works against you since the

boat has to be just at the crest of the wave, essentially parallel to sea level, for that radio beam to shoot out straight ahead and hit something – like a USCG radio tower or another boat's antenna. However, if the gain were lower (10 x 10), whether the boat is pointing into outer space or is plowing down the wave into the trough, some part of that radio beam is getting out, rather than being shot into the back of the wave ahead.

Is there a happy medium between the laser-like 9dB and the flashlight effect of 3dB? My recommendation for the recreational boater is 6dB.

Story by Captain Vincent Pica

If you are interested in being part of U.S.C.G. Forces, email Captain Pica at JoinUSCGAux2010@aol.com or contact John Blevins, who is in charge of new member matters, at FSO-PS@emcg.us.