

case to 500mW (-3dB on 1 watt). 100mW could be expressed as -10dBW, or even (+)20dBm.

Sound levels are often quoted on the relative dB system, ideal for reasons already mentioned, with the reference as 10-16W/cm³, which is the threshold of hearing at 600Hz. Pain starts at +130dB on this level. Have you ever considered the dynamic range of the human ear on this basis — it is better than anything Yaesu will ever do at 130dB, or a ratio of ten trillion to one!!

Aerials and dB

The other reference terms you will meet are dBi, and dBd, which have relevance to aerials. The former is gain relative to an Isotropic radiator, and the latter, to a dipole radiator. You will remember that the Isotropic radiator is the one that radiates equally in all directions at once, usually represented as being a point source within a sphere, and equally illuminating all of its internal surface.

As there is no practical version of the isotropic radiator, ALL aerials

have gain by comparison with one! This does make dBi popular with the manufacturers, but I suspect confuses the average purchaser, who would rather have dBd, as at least the dipole exists! A half wave dipole (in free space) has a gain of 2.1dBi, so remember to deduct this figure if you want to compare with a dipole.

Power or antennas

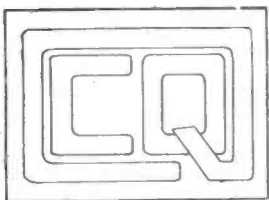
One station was heard to comment the other day that he was running 50W output, and was going to build a new linear to get 100W. This would increase his signal, he thought, and maybe at a later stage he would change his 5 element beam for something larger.

To my mind, he was going about this the wrong way. The increase to 100W, is of course a voltage increase of 3dB. As you probably know, the usual reckoning for 1 "S-point" increase in signal strength is 6dB, so he would be better off by ½ an S-point.

Adding a further 5 elements to his antenna would have gained him about the same increase, but also

have the advantage of increasing the received signal strength by the same amount. In fact, the increase in both directions will probably be more, because the angle of radiation of the antenna will be lowered, and this in itself will increase the strength of the more distant stations. Adding 5 elements on HF is a bit more difficult, but the same thing still applies — the better the aerial the better the signal in both directions (well, almost always...). If you are already running high power on VHF, then the antenna changes must be the most cost effective way of getting out a better signal.

If you run an omni-directional antenna on FM, think about a beam — you will find the increase in signal strength very worthwhile, even with a two or three element, and be putting all your hard earned power in the right direction, not wasting it warming up the ether. For general monitoring, collinears and the such are good, but they are a bit anti-social on transmit, especially in Licencees on VHF/UHF, the use of directional beams does extend the number of stations that can use a channel at any one time. ●

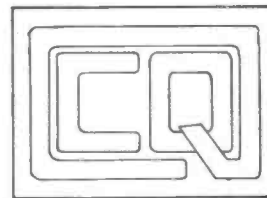


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