

EFFECTIVE RADIATED POWER

Repeater output is usually specified in terms of effective radiated power (**ERP**), **which** is a term not widely used in most other Amateur Radio activities. Commercial services used ERP for many years before it came to be used in the Amateur Service.

It is not difficult to determine ERP for a given installation. First you need to know the exact power output from the transmitter - usually measured with a calibrated wattmeter. Next, deduct from this figure any losses caused by the duplexer. If this figure is not known, it is acceptable to measure the power coming out of the duplexer. Subtract the power lost in the feed line. This figure can be obtained from a table of coaxial cable characteristics. This gives the power reaching the feed point of the antenna. Combine this figure with the gain of the antenna; the result is the effective radiated power. In short, ERP is a measure of the power aimed in a direction that should be useful to the system.

For instance, assume the power output of a repeater transmitter is 200 watts. The duplexer has a loss of 3 dB. This means that 100 watts of power is reaching the feed line input. The feed line also has a loss of 3 dB, resulting in 50 watts reaching the antenna input. The antenna has a gain of 13 dB, which means the ERP of the repeater station is 1000 watts.

Information provided by Bill Smith Jr. KB6MCU