5.3.2 Transmitter power

In SEAMCAT, the transmitter power (P) is expressed as conducted power in dBm, including feeder loss. The antenna peak gain (G) is expressed in dBi.

Consequently, the power calculated by SEAMCAT at the antenna output is the effective isotropic radiated power (e.i.r.p.) expressed in dBm:

e.i.r.p (dBm) = P (dBm)+G (dBi)

If the transmitter power is defined as e.i.r.p (dBm) or e.r.p (dBm), the conducted power (P), including feeder loss, can be calculated as follows:
P (dBm)= e.i.r.p (dBm)-G (dBi);
P (dBm)= e.r.p (dBm)-G (dBi)+2.15.

If the antenna gain is not known, it should be assumed zero, then:
P (dBm)= e.i.r.p (dBm);
P (dBm)= e.r.p (dBm)+2.15.
Note that G (dBi)= G (dBd)+2.15.

Example 1: P_t= 50 dBm (conducted transmitter power), L_f (feeder loss) = 2 dB, G_{ant} (antenna gain) = 15 dBi
SEAMCAT settings should be: Power (dBm) = 50 - 2 = 48, Antenna Peak Gain (dBi) = 15
e.i.r.p (dBm) calculated by SEAMCAT= P (dBm)+G (dBi) = 48 + 15 = 63 dBm

Example 2: e.i.r.p = 63 dBm, G_{ant} = 15 dBi, feeder loss in not needed
SEAMCAT settings should be: Power (dBm) = 63 - 15 = 48, Antenna Peak Gain (dBi) = 15
e.i.r.p (dBm) calculated by SEAMCAT= P (dBm)+G (dBi) = 48 + 15 = 63 dBm

Example 3: e.r.p = 60.85 dBm, G_{ant} = 12.85 dBd, feeder loss in not needed
SEAMCAT settings should be: Power (dBm)= 60.85 - 12.85 = 48, Antenna Peak Gain (dBi) = 12.85 + 2.15 = 15
e.i.r.p (dBm) calculated by SEAMCAT= P (dBm)+G (dBi) = 48 + 15 = 63 dBm

Example 4: e.i.r.p = 63 dBm, no other information available
SEAMCAT settings should be: Power (dBm) = 63, Antenna Peak Gain (dBi) = 0
e.i.r.p (dBm) calculated by SEAMCAT= P (dBm)+G (dBi) = 63 + 0 = 63 dBm

Example 5: e.r.p = 60.85 dBm, no other information available
SEAMCAT settings should be: Power (dBm) = 60.85, Antenna Peak Gain (dBi) = 2.15
e.i.r.p (dBm) calculated by SEAMCAT= P (dBm)+G (dBi) = 60.85 + 2.15 = 63 dBm

Revision #1
Created 2026-04-15 06:33:33 UTC by ECO TECH

Updated 2026-04-15 06:34:13 UTC by ECO TECH