5. Calculate the effective radiated power (ERP) of an antenna with a gain of 5 at a power of 0.5 kW.

6. The antenna in question 5 has a forward gain of 18dB and a reverse gain of 5dB, calculate the F/B ratio of this antenna.

7. A ship radio-telephone transmitter operates at 2738 kHz. At a distant point from the transmitter, the 2738 kHz signal has a measured field of 147 mV/m. The second harmonic field at the same point is measured as 405 μV/m. How much has the harmonic emission been attenuated below the 2738 kHz fundamental?

8. Calculate the maximum usable range for a radar system with a PRT of 400μs.

9. A green LED light source functions at a frequency of 5.7×10^{14} Hz, calculate its wavelength.

1. A balanced transmission line picks up an undesired signal with a 5 mW level. After conversion to an unbalanced signal using a center-tapped transformer, the undesired signal is 0.011 μW. Calculate the common mode rejection ratio, CMRR.

2. A fast rise-time 10–V step voltage is applied to a 50–Ω line terminated with an 80–Ω resistive load. Determine the reflection coefficient Γ, E_F and E_r.

3. Calculate the radio horizon for a 500-ft transmitting antenna and a receiving antenna of 20 ft. Calculate the required height increase for the receiving antenna if a 10% increase in the radio horizon were required.

4. An antenna has a maximum forward gain of 14dB at its 108-MHz center frequency. Its reverse gain is –8dB. Its bandwidth extends from 55 to 185 MHz, calculate a) the bandwidth and b) the F/B ratio of the antenna.

(Continued on reverse side)