

Answer on Question 55051, Physics / Astronomy | Astrophysics

Question:

The surfaces of rocky planets aren't perfect black bodies at radio wavelengths. Rocks reflect about 10% of the radio radiation incident upon them. Use this information to improve your estimate of the 15 GHz brightness temperature and flux density of Mars.

Solution:

Using the equation:

$$T_{b,M} = (1 - r_v)T$$

$$T_{b,M} = (1 - 0.1) \times 225K = 202K$$

Answer: $T_{b,M} = 202\text{ K}$