

# The Calculation Methodology for the Energetic Reserve of the Radio Link Spacecraft–Station

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**Abstract.** Nowadays different sets of calculation methods for energetic reserve are used at the factories of the rocket and space industry, meanwhile, not all the factors influencing the energetics of a radio link are taken into consideration. This causes difficulties while comparing some calculations with others and requires further recalculations which are different from the previous ones and usually have negative results.

The article given below includes the methodology for a general calculation of the energetic reserve of a radio link transmitting the information from a spacecraft to a receiving station. Most of the methods of evaluating the effect of the atmosphere on the signal can be found in the recommendations of the International Telecommunication Union (ITU). Methods of calculation of the losses caused by the environment, which are kept in the recommendations of the ITU, are complemented by loss accounting methods resulting from the guidance errors, Faraday effect and receiver noise temperature calculation.

**Keywords:** satellite communication, atmospheric attenuation, radio link “space craft–station”, energy calculation of a radio link