Noise from military airplane operation is a serious problem in affected surroundings of military airports. Usually, military airplane noise emission data are not available in databases of common programs, which causes problems in noise load modeling. In such cases, it is necessary to obtain emission data by measurement. Measurement must be performed in modes which are not used in ordinary airplane operation. Based on these measurements, acoustic emission data will be processed in the required form according to the used mathematical model. The paper will include examples of acoustic data acquisition and their utilization in mapping of noise load caused by military airplane operation in surroundings of military airports. Also, verification of data acquired by prediction and measurement in the airport surrounding at ordinary airplane operation will be present.