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Methods and Results of Experimental Studies of the Characteristics of Large-Sized Mirror Antennas of Ground-Based Space Communications Complexes Using the Radio Astronomy Method

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Abstract. This article explores the features of methods for measuring the characteristics of ground-based large-sized mirror full-rotation antennas for space communications in different frequency ranges from L/S to Ka. The results of experimental studies of the main radio technical characteristics (gain, power radiation pattern, noise temperature) of several operating antennas are analyzed. Examples are given of the effectiveness of using the developed techniques and equipment for additional adjustment of mirror antenna systems in order to increase their gain at high frequencies.

Keywords: space communications, ground-based reflector antenna, gain, radiation pattern, radio-astronomical measurement method

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