

USE OF THE SIGNALS BY SCATTERING OBSERVATIONS OF FM-BROADCAST STATIONS

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Abstract. A method for restoring analog amplitude-time characteristics (ATC) on the spectrum of FM radio signal. The technique is based on the use of amplitude modulation of the FM-signal, due to the Fresnel interference on the meteor trail, which leads to the disappearance of signal at the FM-receiver with signal to noise ratio at its input is below the lower threshold of the frequency demodulator. Such an assumption was experimentally confirmed by the example of timebase signal Polish FM-radio station, reflected by the short-lived meteor trail underdenses. In turn, position of the first local maximum of the spectral density of the signal at the FM-receiver is inversely proportional to the time between the first and second Fresnel zone, which determines the specific features of the distribution of spectral density. Based on this proposed method is a rough estimate of the velocity of the meteor from the spectrum of FM-signal transmitter. When viewed from 6.10 to 6.23 in 2010, wavelet spectral density of signals distinguished Polish FM-radio station, determine the maximum of the spectral density and position of the first local maximum of the estimated rate of meteors. By signaling FM transmitters analysis of the observed signals reflected from the trails of meteors as a function of their lifetime. Comparison of the statistics with earlier statistics shows their good agreement, which gives hope for the possibility of a successful breeding meteors signaling FM-radio stations. As an illustration, in the absence of interference caused by increased long-range VHF tropospheric propagation through the temperature inversion, selected Quadrantids. Time sequence of FM-radio signal reflected from a meteor trail, is an important hallmark of a meteor, and can be used to develop an algorithm of automatic recognition of the meteor trail at a signal FM-radio. Based on the specifics of the amplitude and temporal features of the distribution of the spectral density of the signal scattered from meteor trails proposed a qualitative model of the signal.

Keywords: meteor, trail, specular, reflection, FM-transmitter, FM-radio station.