Observations of the anomalous third Schumann resonance peak during October 21 to 25, 2004 at Modra Observatory and a possible explanation

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A b s t r a c t : At the Astronomical and Geophysical Observatory of FMFI UK at Modra, the permanent monitoring of Schumann resonance (SchR) spectra has been performed for more than three years (in electric field component – the SchR magnetic field component spectra have been measured – up to now – only intermittently for a shorter time). During second half of October 2004, several cases of anomalously high third SchR mode amplitude were observed. Because the man-made artifacts as a cause can be (with high probability) excluded, we seek for the possible natural explanation. Two explanations appear to be physically plausible: the occurrence of multiple return strokes (MRS) or the very special geometrical source-receiver relations. We propose that the dynamical behavior of short-interval spectra can distinguish between them.

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