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Detectability of Solar Type III radio bursts at Saturn's orbit

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We investigate the occurrence of solar Type III radio bursts recorded by RPWS experiment onboard Cassini spacecraft from the beginning of 2008 to the end of 2014. The analysis of the burst spectral shapes allows us to derive several observational parameters like the time occurrence, the maximum frequency and the intensity level. We found more than 300 Type III bursts which occurred in the selected interval of about seven years. The heliospheric longitudes is found to vary from 185° to 240° and the heliospheric latitudes change from 2.1° to 2.7° when the distance of Cassini to the Sun was about 9 AU. Three main aspects are considered in the frame of this work: (a) the detection conditions of Type III solar bursts, (b) the rate yearly occurrence of solar bursts and (c) the relationship between the maximum frequency and the intensity level. Those features lead us to compare the Cassini's Type III bursts to those recorded by Wind satellite at the orbit of the Earth. We show that only 5% of Type III bursts are observed by both spacecraft. Those common bursts are found to mainly be generated in the interplanetary medium in the vicinity of the solar corona. The weak number of common solar bursts seems to be associated to the ecliptic spatial extension of the Archimedean spiral emerging from the Sun, crossing the Earth's orbit and reaching the Saturn's orbit.