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PL612 LOFAR station sensitivity measurements in the context of its application for pulsar observations

L. P. Błaszkiwicz^{1,2}, W. Lewandowski³, A. Krankowski¹, J. Kijak³, A. Froń¹,
T. Sidorowicz¹, B. Dąbrowski¹, K. Kotulak¹ and M. Hajduk¹

¹ Space Radio-Diagnostics Research Centre, University of Warmia and Mazury, Olsztyn, Poland

² Faculty of Mathematics and Computer Sciences, University of Warmia and Mazury, Olsztyn, Poland

³ Janusz Gil Institute of Astronomy, University of Zielona Gora, Zielona Gora, Poland

Abstract

The Low Frequency Array (LOFAR) is relatively new interferometric radio telescope. LOFAR operates in poorly explored part of the spectrum (10-240 MHz). In this frequency range pulsars are bright, and LOFAR observations of pulsars are important for probing fundamental physics and the interstellar medium. In this work we present the description of the international LOFAR station frontend and backend parameters related to pulsar observations with a single LOFAR station, based on observations with the Polish station, located in Bałdy near Olsztyn. We present new results from observations aimed at better characterizing the telescope sensitivity. These measurements are important for efficient planning of pulsar observing campaigns. Observations show good sensitivity for pulsar measurements above 25 degrees elevation and show the noise level rises significantly for elevations below 25 degrees.

Key Points: instrumentation: LOFAR - low frequencies: sensitivity - pulsar's observation

Corresponding author: Leszek P. Błaszkiwicz (leszekb@matman.uwm.edu.pl)

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