

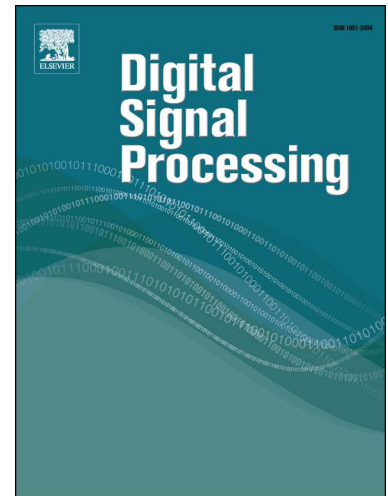
Accepted Manuscript

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PII: S1051-2004(17)30062-3
DOI: <http://dx.doi.org/10.1016/j.dsp.2017.04.002>
Reference: YDSPR 2098

To appear in: *Digital Signal Processing*



Please cite this article in press as: J. Nikonowicz, M. Jessa, A novel method of blind signal detection using the distribution of the bin values of the power spectrum density and the moving average, *Digit. Signal Process.* (2017), <http://dx.doi.org/10.1016/j.dsp.2017.04.002>

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A novel method of blind signal detection using the distribution of the bin values of the power spectrum density and the moving average

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Abstract—Signal detection in additive white Gaussian noise (AWGN) is one of the long-term developments driving the evolution of many different fields of science and technology, with important applications in telecommunications, medicine and astronomy. In this paper, we propose a novel method of blind signal detection that does not require knowledge of the noise variance. This method uses the distribution of the bin values of the power spectrum density of the received signal and the moving average (MAV). The simulation results for radio pulses show that the spectrum sensing performance is significantly improved under the proposed scheme compared to that of known blind signal detection methods.

Index Terms—Blind signal detection, power density spectrum, moving average, Gaussian noise.

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The presented work has been funded by the Polish Ministry of Science and Higher Education within the status activity task 08/83/DSPB/4717 in 2016.

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