Fast Tracking the Fundamental component in Synchrophasors applications using the Recursive Corrected Phase Wavelet Transform

C. D. P. Crovato¹, V. Sousa², G. Soares³ and A. A. Susin⁴

¹,²,³ Embrasul Indústria Elétrônica
Av. Bahia 684, CEP: 90240551, São Geraldo, Porto Alegre - RS (Brasil)
Phone number:+55 + (51) 3358-4000, e-mail: {cesar, vinicius, guilherme} @embrasul.com.br

⁴ Departamento de Engenharia Elétrica (DELET)
Universidade Federal do Rio Grande do Sul (UFRGS)
Av. Osvaldo Aranha, 103 CEP: 90035-190, Bom Fim, Porto Alegre, RS (Brasil)
Phone/Fax number:+55 + (51) 3308-3515 / 3308-3293, e-mail: altamiro@ufrgs.br

Extended Abstract. Abstract. This paper presents the use of Recursive Corrected Phase Wavelet Transform to track harmonic components (always present in Power Systems), in order to determine the fundamental frequency “as soon as possible”, to provide appropriate input values to a non-linear algorithm that can accurately approach in only one cycle the amplitude and phase of the fundamental frequency. This technique is useful in real-time synchrophasors applications, specially for load identification and characterization. Based on the deepest descend method, the algorithm has less computational effort in comparison with phased locked loop.