

In-band Interference Suppression in Time-domain Algorithms for DTMF Detection

Syed Ismail Shah¹, Faisal M Kashif¹, Jamil Ahmad¹ and Jahanzeb Khan²
¹*Iqra University, Islamabad Campus, Sector H-9, Islamabad, Pakistan*
²*Bahria University, E-8, Islamabad, Pakistan*
ismail@iqraisb.edu.pk, fmkashif@iqraisb.edu.pk, jamil@iqraisb.edu.pk,
jehanzebk@hotmail.com

Abstract

The use of dual-tone multi frequency (DTMF) signaling is very common in telecommunication systems such as telephone exchanges, Private Branch Exchanges (PBXs), and call centers etc. One of the approaches of DTMF detection is based on the cycle estimation of the frequencies present in the DTMF signal. Any interference that lies in the frequency region of the DTMF signal disturbs the cycle estimation process employed by the time-domain algorithm thus degrading the detector's performance. In this article we present an easy-to-implement solution to this problem. The approach is based on enhancing the estimated DTMF signal frequencies, thereby reducing the effect of the in-band interference. The proposed solution was tested on simulated signals as well as real data recorded from a PBX. Improvement in the detection of the DTMF signals in the presence of in-band interference was observed in both cases.

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