



航空学报 » 1994, Vol. 15 » Issue (9) :1126-1129 DOI:

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双通道时间差采样——一种测定叶片振动频率的方法

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TWO CHANNEL TIME-DIFFERENCE SAMPLING——A NEW METHOD FOR DETERMINATION OF COMPRESSOR BLADE VIBRATION FREQUENCY

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摘要

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摘要 提出了一种测定压气机叶片振动频率的方法——双通道时间差采样法。利用二路采样信号的相关性及相位差,通过内插搜索可有效克服由于采样频率过低而造成的混叠现象。等效地提高了实际采样频率,从而正确测定出叶片的振动频率。方法具有快速简单,检测精度高,测定频率范围广的特点。

关键词: 叶片—振动测量 频率测量 频谱分析

Abstract: A 2-channel time-difference sampling method is proposed. It is a new method for determination of compressor blade vibration frequency. According to the correlation and the phase difference between the two sampled signals, and using interpolation and search, it can availably overcome the aliasing, which comes from the lower sampling frequency, and thus determine correctly the blade vibrative frequency. The method has been applied to blade vibration monitor system and achieves good results. It has advantages of being fast and simple, with high accuracy and wide frequency range.

Keywords: blades-vibration measurement frequency measurement spectrum analysis

Received 1993-05-03; published 1994-09-25

引用本文:

李志钧. 双通道时间差采样——一种测定叶片振动频率的方法[J]. 航空学报, 1994, 15(9): 1126-1129.

Li Zhijun. TWO CHANNEL TIME-DIFFERENCE SAMPLING——A NEW METHOD FOR DETERMINATION OF COMPRESSOR BLADE VIBRATION FREQUENCY[J]. Acta Aeronautica et Astronautica Sinica, 1994, 15(9): 1126-1129.

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