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SOME ASPECTS REGARDING THE IMAGE ACQUISITION USING VIDEO SYSTEMS UNDER LOW VIBRATIONS

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Rezumat. *Autorii analizează posibilitatea de evaluare a calităţii imaginii preluate prin intermediul unui sistem de achiziţie video aflat în regim de vibraţii scăzute, fără stabilizare, respectiv cu stabilizare electronică. Calitatea imaginilor statice a fost cuantificată prin rezoluţie, claritatea contururilor şi contrast. Deplasările din imagine dintr-o secvenţă video, achiziţionată cu o cameră CCD, au fost analizate prin calculul gradului de corelare dintre imaginile extrase din cadre. Regimul vibratoriu al camerei video utilizate a fost caracterizat prin frecvenţă şi amplitudine şi a fost studiat cu ajutorul unor programe software de analiză sunet şi imagine. În lucrare sunt prezentate imagini reprezentative ale obiectelor test utilizate, înainte şi în timpul vibraţiilor, precum şi rezultatele determinărilor efectuate. S-a constatat că parametrii vibraţiilor influenţează diferenţiat parametrii cuantificabili ai calităţii imaginii.*

Abstract. *The authors analyze the possibility of evaluating the image quality taken by a video acquisition system under low vibrations, without and with electronically stabilization. The quality of some static images was quantified by resolution, sharpness contours and contrast. The image displacement in a video sequence taken with a CCD camera was analysed by calculating the correlation's degree between extracted frames. Vibratory conditions for video camera used were characterized by frequency and amplitude and were studied by sound and image analyzed software. Representative images of test objects used are presented in the work, before and during vibration and the results of measurements performed, also. It was found that the vibration characteristics have a differentiated influence on measurable parameters of image quality.*

Keywords: Image quality, data analysis, low vibrations, driving devices, thermal cameras, CCD cameras

1. Introduction

The image quality when unexpected events are occurred is essential in vehicles driving and traffic monitoring during day or night, if the driver uses thermal cameras and CCD cameras. Most of the difficulties are due to the stress growing that is induced by an increased attention needed to drive and maintain the carefulness to avoid accidents. Mechanical vibrations are among the most powerful degradation sources of image quality and they can lead to the distraction of driver's attention.

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