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Identification of transient events from a hard disk drive using non-stationary loudness

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The Hard Disk Drive (HDD) industry has been pushed so much to lower its limits of acoustic emissions by OEMs and customers that the levels of most HDDs flirt with the threshold of hearing and in some cases go below. With these much reduced levels come different problems and complaints from customers, namely transient events; latching, de-latching, spin up, spin down, etc. The difference in amplitude and duration of these events typically stand out to the human ear above the steady state nature of the HDD during idle and sometimes when it's active. This paper shows a method of characterizing these events with confidence to help in designing a better product for the industry.