Application of vibro-acoustic operational transfer path analysis - DTU Orbit (07/08/2019)

**Application of vibro-acoustic operational transfer path analysis**

Transfer Path Analysis (TPA) is widely used to identify individual path contributions and to solve Noise, Vibration and Harshness (NVH) issues in different industries. However, the complexity and technical burden of the conventional TPA calls for alternative, faster techniques. One such alternative is the Operational Transfer Path Analysis (OTPA), which uses only operational data to estimate the contributions. However, this approach has its own limitations; in some situations, the OTPA results may be affected, which can lead to the wrong engineering decisions. This paper presents an alternative formulation of OTPA, in application to structure-borne noise: Operational Transfer Path Analysis – Difference (OTPA-D). The theoretical considerations and analytical model showed that OTPA-D solves one of the crucial issue regarding the OTPA technique. The paper provides theoretical considerations behind OTPA-D; also, a laboratory model is set up to compare the results of three versions of OTPA with the results of TPA. It is shown that two experimental OTPA versions matched TPA better compared to the traditional OTPA method.

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