# Article information:

Low-pass-filter-based shock response spectrum and the evaluation method of transmissibility between equipment and sensitive components interfaces - ScienceDirect  
<https://www.sciencedirect.com/science/article/pii/S0888327018304242?via%3Dihub=>

# Article summary:

1. Shock response spectrum (SRS) is commonly used to characterize the shock effect on a series of SDOF oscillators in frequency domain and estimate its severity. However, it is difficult to specify the exact shock environment at component interface in terms of its acceleration-time history when SRS at equipment interface is known.

2. The European Cooperation for Space Standardisation (ECSS) has used the shock transmissibility between equipment and component interfaces obtained from sine sweep tests to determine the shock environment at component interface from the shock environment at equipment interface. However, this evaluation method relies mainly on rules-of-thumb and cannot be considered as a reliable method.

3. A low-pass-filter-based SRS (LPSRS) proposed in this paper can predict the shock environment at component interface with some basic modal information of the equipment structure. LPSRS method for shock transmissibility also provides a theoretical support for laboratory shock test, with which it is possible to use simple shocks to test stand-alone sensitive components, rather than testing the sensitive components on whole equipment.

# Article rating:

Appears moderately imbalanced: The article provides some useful information, but is missing several important points or pieces of evidence that would be required to present the discussed topics in a balanced and reliable way. You are encouraged to seek a more balanced perspective on the presented issues by exploring the provided research topics and looking at different information sources.

# Article analysis:

作为一篇科技论文，该文章的内容相对客观，但仍存在一些偏见和不足之处。

首先，文章只关注了军事和航空工程领域中的冲击问题，而忽略了其他领域可能面临的类似问题。这种局限性可能导致作者在研究中忽略了某些重要因素或未能考虑到其他应用场景。

其次，文章提出了一种新的冲击传递评估方法，但并没有提供足够的证据来支持其有效性。作者只是简单地声称该方法可以预测组件接口处的冲击环境，并通过有限元模拟结果进行验证。然而，在实际应用中，该方法是否可靠还需要更多实验数据和验证。

此外，文章没有探讨可能存在的风险或负面影响。例如，在使用较小走廊时可能会导致材料失效，在使用较大走廊时则可能会增加重量、设计周期和材料成本。这些风险应该被认真考虑，并在评估方法中得到充分体现。

最后，文章缺乏平等地呈现双方的态度。作者只关注了敏感组件在冲击环境下的安全性问题，并没有考虑到其他因素，如成本、设计周期等。这种偏袒可能导致作者在研究中忽略了某些重要因素或未能得出全面的结论。

综上所述，该文章虽然在科技领域中具有一定的价值，但仍存在一些偏见和不足之处。为了更好地解决冲击问题，需要进一步探索和验证新的评估方法，并充分考虑所有相关因素。

# Topics for further research:

* Other applications of impact assessment
* Evidence supporting the effectiveness of the proposed method
* Potential risks and negative impacts
* Equal consideration of all relevant factors
* Further exploration and validation of assessment methods
* Comprehensive consideration of all relevant factors.

# Report location:

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