

Manuscript Evaluation

Manuscript number: 2013/BJAST/3277

Manuscript title: Analytical Technique for Predicting Passenger Car Gearbox Structure Noise Using Vibration Response Analysis

British Journal of Applied Science & Technology

The manuscript presents an **interesting and distinctive** research on predicating passenger car gearbox structure noise by analytical technique using vibration response analysis. There is no doubt gearbox noise detection is very important topic in industry. In this manuscript, the Sound Pressure Level (SPL) is predicted by theoretical model and compared with the experimental results shown in figure15. Other interesting experimental results and theoretical predictions are demonstrated as well. The authors have fixed majority of the problems and concerns presented by the reviewers. Even though the revised manuscript looks better, however, I strongly suggest **the authors do serious major revision of the manuscript** and take my following comments into consideration, if possible.

1. Language Barrier

First of all, the authors should ask somebody with proficiency in English technical writing to polish the sentences of the whole paper. In my opinion, the writing is unacceptable. At least 30% of the sentences in this manuscript have grammar mistakes and/or ambiguous meaning which nobody can understand. For instance, the phrase “using the measured vibration response” sounds better than the phrase “using vibration response measured” shown at the several places in this manuscript. Poor English writing has actually compromised the quality of the research. The authors are doing their work a disservice. Language barrier may nullify the significance of the research results.

The first reviewer correctly pointed: “[The authors should check the manuscript carefully to prevent any grammatical or syntax errors, and badly constructed sentences.](#)” Unfortunately, the quality of the manuscript is not improved that much after the first modification. The revised version doesn’t really address the following comments from the second reviewer as well: “[First, the literature review part doesn’t focus on the subject of this paper. Second, neither analysis nor comparison of literature can be found to introduce the subject. What is worse, the 1-7 paragraphs are nearly completely copied from the abstracts of the reference.](#)” The literature review of the revised version is still poorly written. **The authors should re-write the literature review using their own words, based on their understanding.**

2. Technical Questions

(A). A well written motivation of research is usually needed for a good paper. Unfortunately, I cannot find it in this manuscript. In the introduction part, the authors should articulate what the unsolved problem is and briefly highlight their contribution. How do their results differ from the published ones? What can people achieve from their results compared with other published ones?

(B). Nomenclature doesn't include all the parameters used in this manuscript.

(C). On page 4, the authors mentioned: "The radiation efficiency (σ) which is presented in equation (4) can be established for the surface of a gearbox structure by idealizing the structure as an assembly of simple flat plates (panels) as shown in Fig. 1."

In addition to schematic diagram of figure1, the authors may show a photo of the practical gearbox surface to validate their assumption that the surface can be assembled by several flat plates.

(D). On page6 under "Test Procedure", the authors should list the types of the accelerometers applied to the experiments. Do they affect the system's vibration response?

(E). Figure2 is not acceptable, words should be legible.

(F). I do not know what conclusion the authors are trying to make in the last paragraph on page8. Is it possible that the larger transient vibration magnitude is triggered by initial conditions? The authors should give more explanation.

(G). The authors should interpret what "the same trend" means in the last sentence of the first paragraph on page 9 "Generally speaking, the spectra exhibit the same trend with different peaks and different locations."

(H). Since the values of the parameters are scattered everywhere, readers might have hard time to follow. The authors should list tables to include **complete** parameter values for repeating and checking. For instance, the authors described how to calculate the gear mesh frequency in the last paragraph on page 9, but did not give the number of the teeth of the gearing system. Furthermore, they did NOT even depict the structure of the gearbox (fixed-axis gear or planetary gear or the combination). Without complete information, there is no way to check the results of this manuscript.

(I). The English writing of the first paragraph on page11 is unacceptable and must be modified. Note: "Figure 6.15" does not exist.

(J). The paragraph on page 12 is very ambiguous to me and must be revised. For instance, where is the "0.6m noise source" located in the gearbox? The authors should articulate clearly the meaning of "the same trend", when they state "Generally speaking, the spectra exhibit the same trend with different peaks and different locations. A common peak exists at 1/3-octave band of 50 Hz, while the level is different due to the element location in the idealization, its area and its end conditions." I could NOT see "the same trend" and the common peak at 50Hz from figure 16-19. Please explain. What conclusions are the authors trying to make from this paragraph?

(K). Boundary conditions are critical and important for plate theoretical modeling. Please list a table showing the boundary conditions used in this manuscript, if any.