Vibration and Acoustic Analysis for the Speaker Cover of the Automotive Trim

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In general, a mesh cover is attached to the front of the speaker to protect the speaker. Experiments have confirmed that the sound pressure changes depending on the distance between the speaker and the cover, the thickness of the cover, and the like. The result of calculating this phenomenon using the FE model is introduced. It was confirmed that due to the influence of the cover, the sound pressure increased due to the resonance phenomenon below a specific frequency, and the sound pressure decreased due to the sound insulation effect above that frequency range. Similar results were obtained when the cover thickness was changed. We also report the calculation results even though the hole diameter is changed and when the distance between the cover and air is changed.