



## Background amplified audio levels and verbal communication in hospitality settings in the context of Scottish Government Covid-19 restrictions

### Executive summary

In partnership with the UK Acoustics Network (UKAN), KSG Acoustics has undertaken a series of field studies to investigate the effects of varying background amplified audio levels on verbal communication in the context of Scottish Government Covid-19 restrictions applicable to hospitality settings.

The report has been prepared in response to statutory guidance published by the Scottish Government on 14 August 2020, which introduced measures to eliminate background music and audio in hospitality settings. In the context of other published studies, it aims to examine the effects of controlled low levels of background audio on the ability of groups of test subjects to verbally communicate without significantly raised vocal effort and within the constraints of current physical distancing requirements.

Eight hospitality settings in Glasgow city centre were selected in which to conduct field tests. Each setting is unique in aspects including, but not limited to capacity, room dimensions, room finishes, PA design, and preferred background music genre.

Amplified audio signals comprising open source 'speech babble' and pre-recorded music content were generated through in-house PA systems, and typical levels measured adjacent to a group of test subjects positioned 1m from each other at a table located closest to the PA loudspeakers. Each test comprised a timed two-minute period, during which test subjects were required to participate in a discussion around a range of pre-agreed subjects. After each test, subjects were asked to complete a set of subjective response questions before repeating the test at an increased audio signal volume.

For the purposes of this assessment, amplified audio signals have been classified as audio Level 1, Level 2, and Level 3, reflecting increasing volume. It is important to recognise that these classifications apply only to the assessment of background audio (speech babble and background music) in this context. All audio signals used were subjectively representative of

background sound at varying levels and these tests are not designed to assess events where amplified audio is a focus.

The absolute and accurate measurement of speech intelligibility is complex, and this study does not pertain to reproduce it. The tests are, however, based on controlled listening conditions using in-house PA loudspeakers in real hospitality settings affected by the current restrictions.

The subjective responses provided by test subjects in the field studies confirm that the presence of background amplified audio does not result in significantly increased vocal effort (very loud voice or shouting) at 1m separation from other test subjects.

This was the case in all hospitality venues assessed and at all test levels, regardless of background music selection, amplified audio signal content and specific characteristics of the venue.

All test subjects considered that their own vocal effort, and those of other participants, did not progress beyond normal conversational level when the amplified audio signal played was at Level 1 and 2, and did not progress beyond increased vocal effort to loud voice at Level 3. There was no perceived progression to very loud voice or shouting.

The results of the field studies reflect the results of other relevant published scientific studies, providing a clear indication that well-managed background amplified audio can be safely reintroduced to hospitality settings without increasing the risk of significantly increased vocal effort, or breaching physical distancing requirements. As such, reintroducing well managed background amplified audio is unlikely to have an adverse effect on public health risks.