[GANG IESD MIX RECOMMENDATIONS]
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About This Document

The GANG IESD pro branch is committed to researching and providing recommendations for best industry practices. We aim to be as thorough and platform agnostic as we can in our endeavors, and consult a wide variety of industry experts prior to, and during, the publication of any recommendation documentation. This document has been created to specifically address production Listening Levels and content Loudness Levels of console-based video games.

IESD Recommended Listening Levels

If you are using a large mix stage to monitor, we recommend calibrating to a **79dB SPL reference listening level**. We recommend 79dB as this is a standard for home entertainment material (DVD / Blu-ray and Television) whereas 84/85dB is a standard for theatrical exhibition (cinema theaters)

However, if listening in a smaller studio or sound room, we strongly recommend following the ATSC guidelines set out in the A/85 document table 10.2 – i.e. a room with < 1,499 cubic feet of volume should ideally monitor at 76dB SPL

www.**atsc**.org/cms/standards/a_**85**-2011a.pdf

Notes
- Ensure no unwanted processing or attenuation is occurring via a receiver ('phantom centre' and 'no centre' presets etc) – (sometimes not possible on some receivers.)
- Ensure you have calibrated surround metering up to the resolution (5.1 / 7.1 etc.) you are mixing.

IESD Recommended Loudness

Sony, Microsoft & Nintendo Console Titles

The IESD, through thorough discussion, have reached consensus between its various members and associated partners to recommend the following overall loudness numbers.

Measurement of Loudness Level and True Peak Levels should be done according to the ITU-R BS.1770-3 algorithms and specifications via a compliant meter*.

Recommended Average Loudness for a console title should be normalized to -23 LUFS (tolerance of + or – 2 LU)

True Peak of content should not exceed -1dBTP

Down-mixing of content from surround to stereo should remain consistent with the above levels (stereo should be the same loudness as surround – recommend stereo and surround versions are measured in order to test this)

Measurements made using ITU-R BS.1770-2 are acceptable as not all commercially available meters are updated to revision 3.

Further Notes:

- Measurement of a game's overall loudness requires a sustained period of measurement. Authors recommend at least one hour. Testing should involve a broad cross-section of the title's gameplay types and linear content.
- The "gate" specified in BS1770-2 means that measurement will disregard material more than 10 LU below the specified average loudness.
- ITU and EBU agreed on specs for BS1770-2.
- Gate was changed from -8 to -10 LU.
- LKFS = LUFS.
- 1 LU = 1 dB.
- BS1770-2 specifies 3 different measurements. Momentary (400ms), Short Term (3s) and Integrated (over the course of the whole piece)

Please email the IESD co-chairs with any comments or questions iesdcchairs@audiogang.org