

Technical Guide: Infra bass bypass in ART

Problem formulation

Dirac Live ART implicitly enforces a steep high-pass filter at 20 Hz, with the consequence that any content below 20 Hz present in a recording would not make its way out to any of the speakers, including infra bass-capable subwoofers. For reference, neither Dirac Live Room Correction nor Bass Control would limit the amount of infra bass in the way that ART does.

Solution description

Dirac has implemented an optional “infra bass bypass”, enabled through a checkbox for each support channel group within each main channel group. It is intended to only become available when F-support Low (the low end of the support range) of a speaker group is lower than 21 Hz. Checking the box, which is optional, will then allow a low-passed versions of the inputs for that speaker group to pass through.

A user can make the checkbox available for a particular loudspeaker group by dragging the support range for that group down to 20 Hz. It must be stressed that this kind of manual override should only be done for speakers that have the capability to play below 20 Hz.

The target curve will be used as reference for infra bass level. All speakers that have been opted in for the infra bass bypass will receive an equal share with equal gain of the infra bass bypassed content, such that they sum up to the target curve level.

The infra bass bypass option will only be available to users with granted access to the “U4h infrabass” feature in their license.

Recommended use

The channel grouping made automatically by Dirac is based on meta data from the speaker configuration. Subwoofers will be automatically grouped together, even if they have very different specifications.

- If subwoofers in fact have very different capabilities, it is recommended to separate them into two or more different channel groups. This will allow each group to maximise its performance without being limited by less capable individual speakers in the same group.
- ***It is recommended to enable the infra bass bypass option on channel groups that can play down to 20 Hz.***
- ***It is recommended to **not** enable the infra bass option on channel groups that cannot play down to 20 Hz.***



Figure 1: Bass response with infra bass bypass option disabled.

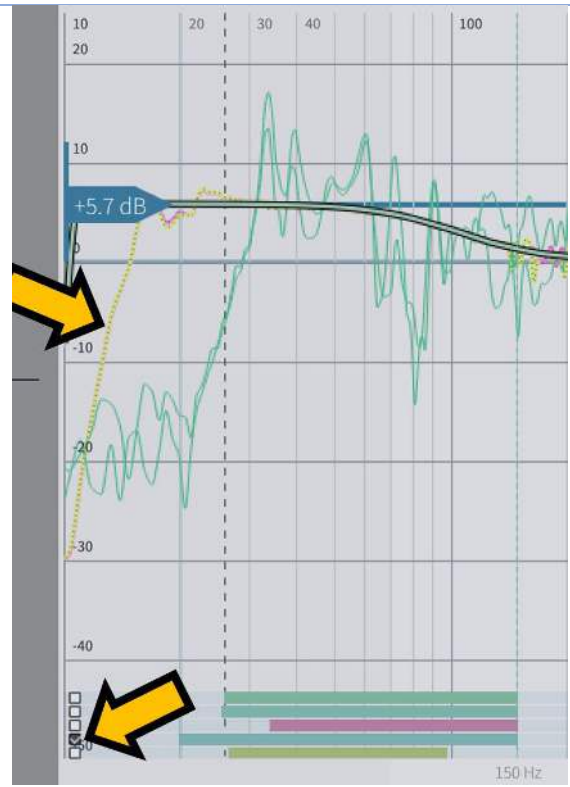


Figure 2: Bass response with infra bass option enabled.

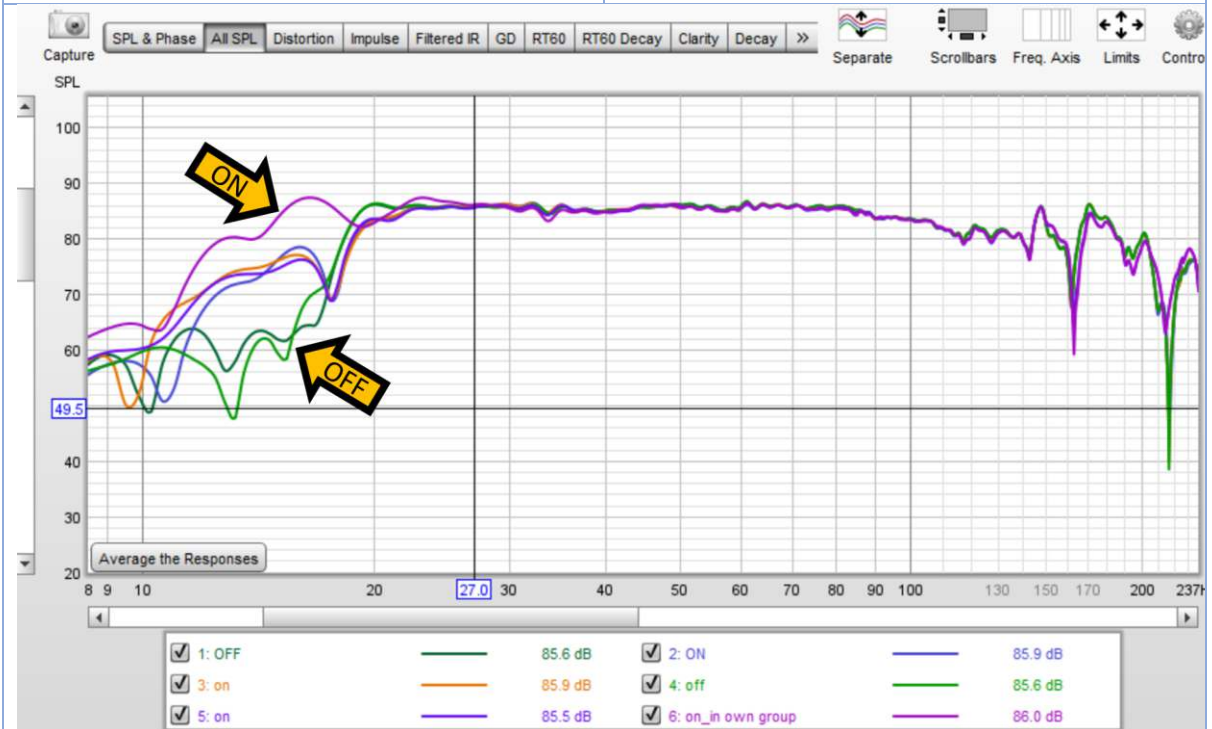


Figure 3: REW measurement showing infra bass bypass ON and OFF. The best infra bass response is from grouping the most capable subwoofer(s) in a separate group. The orange/purple/blue contain different subs in the same group.

Limitations

There is a chance that the crossover band between the infra bass and the ART region does not add up perfectly, since the infra bass part is not phase corrected. This may show as a small bump or dip around 20 Hz. However, such content cannot really be heard, but rather felt in the body, so it should not reasonably have any impact on the audible experience.