

Dirac Live® & the RS20i

DATASAT

 **DATASAT**
RS20i



 Dirac Live

Dirac Research has worked for many years fine-tuning digital sound optimization and room correction. Today, the technology is available to the high-end consumer audio market with the Datasat RS20i. To understand the true benefits of this feature, let's start from the beginning:

Sound is recorded according to the intentions of the artist and producer. However, how it will reach the listener is uncertain, due to the broad array of listening rooms, amplifiers and loudspeakers used. Rooms, amplifiers and loudspeakers inevitably distort the sound both in the frequency domain and in the time domain.

By digitally optimizing the audio signal prior to sending the signal to the amplifiers and by measuring the output from each speaker of the audio system such that it is perfectly adjusted to the acoustical behavior of the listening environment, a much more transparent and true-to-the-source sound can be delivered.

This true-to-the-source sound is obtained through the use of world leading room and loudspeaker optimization software from Dirac Research with practically unlimited resolution. In addition to this unique technology, the RS20i also provides traditional tuning methods.

Dirac Live® is a state-of-the-art digital room correction technology which optimizes the sound both in terms of the impulse response as well as the stationary frequency response. The result is substantially improved musical staging, clarity, voice intelligibility, and a deeper and tighter bass, not just in a small sweet spot but in the entire listening environment.

Benefits of Dirac Live® for Home Audio

Increased musical clarity and voice intelligibility

A deeper and tighter bass

A restored sound stage

Reduced listening fatigue



Increased Musical Clarity and Voice Intelligibility

By digitally optimizing the output from each speaker of the audio system such that it is perfectly adjusted to the acoustical behavior of the listening environment, a much more transparent and true-to-the-source sound can be delivered. Voice intelligibility is improved and music becomes clearer.

A Deeper and Tighter Bass

Acoustic room modes distort the character of the bass. Loudspeakers continue to ring even after a bass punch has been delivered due to mechanical restrictions. Dirac Live® effectively prepares the loudspeaker for the sound that is coming and reduces the settling time of the loudspeaker, thereby achieving a much tighter bass. By adjusting the speaker outputs to the room modes, the character of the bass is restored to that intended on the recording. The result is a tighter, deeper and more defined low end.

A Restored Sound Stage

Dirac Live® restores the sound stage so that the localization of sound events become much more detailed. Since stereo and multichannel perception depends crucially on the similarity, or correlation, between the signals at the left and right ears, which in turn is determined by the impulse responses of the signal paths, only true mixed-phase impulse response correction can improve the spatial perception of a sound reproduction. Dirac Live® is the solution to achieve this in any size listening space.

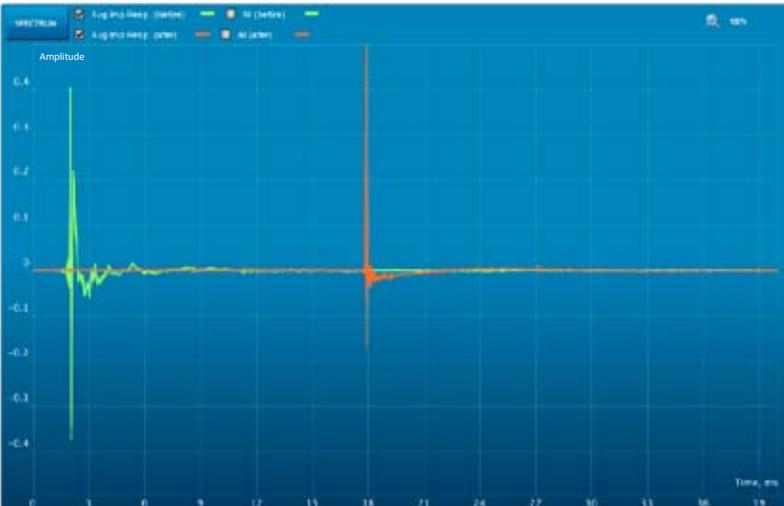
Reduced Listening Fatigue

Time-domain distortions, caused by diffraction, cross-overs, and early reflections, make it difficult for our brains to interpret the sound. A smooth frequency response and an aligned phase response make the sound more natural and prevent listening fatigue during prolonged listening sessions. With the unique phase response correction and magnitude response optimization of Dirac Live®, listening becomes effortless and brings you one significant step closer to reality.

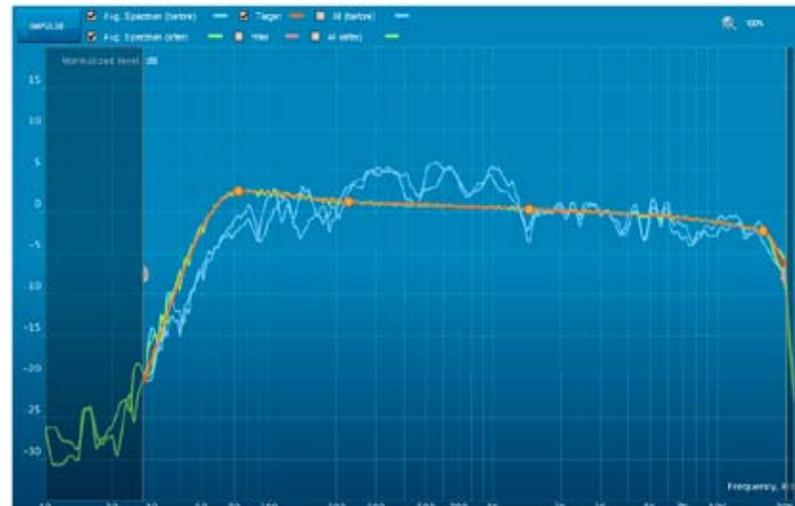
Technical Highlights of Dirac Live® for Home Audio

Dirac Live Calibration Tool™ Graphs

Impulse Response Optimization



Frequency Response Optimization



True Impulse Response Optimization

Dirac Live® is unique to the marketplace in that it provides true working impulse response correction as measured over larger listening regions. This impulse response is critical for multichannel and stereo perception. Localization and stereo hearing, in general, depend on the similarity between and the quality of the channel impulse responses. Dirac Live® improves the precision and the clarity of the audio imaging.

Magnitude Response Correction

Dirac's patented methods offer just the right resolution. Based not only on an average response, the stationary frequency response correction looks at the variations between different measurement positions and carefully makes a correction whose level of detail depends on the frequency-dependent spatial variations.

Mixed-Phase Technology

Dirac's mixed-phase filter technology provides the highest performance available. Loudspeakers measured in rooms are mixed-phase and consequently only a mixed-phase correction can restore the intended impulse response. Room correction systems that only provide minimum-phase or linear-phase correction fail to improve aspects which determine the perceived localization and clarity of a sound event.

Robust Spatial Algorithms

Dirac's comprehensive research and development has yielded a stable method that can effectively be applied in volumes as large as concert halls. The time and frequency-variable resolution, depending on the amount of spatial variations, always strikes the right balance between resolution and robustness.



Dirac Live® run-time capability is installed on every Datasat RS20i allowing for both traditional room tuning and Dirac Live® room optimization. Installers are required to attend a certification course to learn how to accurately calibrate a room with the Dirac Live Calibration Tool™.

Certified Installers who purchase the Installer Kit will receive a copy of the Dirac Live Calibration Tool™. This is cutting edge software developed by Dirac Research. It offers significant performance and usability improvements including:

- State-of-the-art algorithms with higher performance and increased robustness.
- Fast measurement procedure with graphical guidelines for microphone positioning and ability to view and remove individual measurement data of each measurement.
- Easy-to-use user interface with drag and drop functionality for grouping channels, setting correction frequency range, and exporting filters.

For more information on certification and the Datasat RS20i please visit: www.datasatdigital.com

For more information on Dirac please visit: www.dirac.se



Dirac Live® is a registered trademark and Dirac Live Calibration Tool™ is a trademark of Dirac Research AB.

DATASAT
DIGITAL ENTERTAINMENT

www.datasatdigital.com

9631 Topanga Canyon Pl
Chatsworth, CA 91311
+1 (818) 531 0003

5 Tavistock Estate
Ruscombe Lane, Twyford
Berkshire RG10 9NJ, UK
+44(0) 1189 349 199