Jecklin disk - a stereo microphone array with isolating baffle

Deutsche Text-Version: http://www.sengpielaudio.com/Jecklinscheibe.pdf

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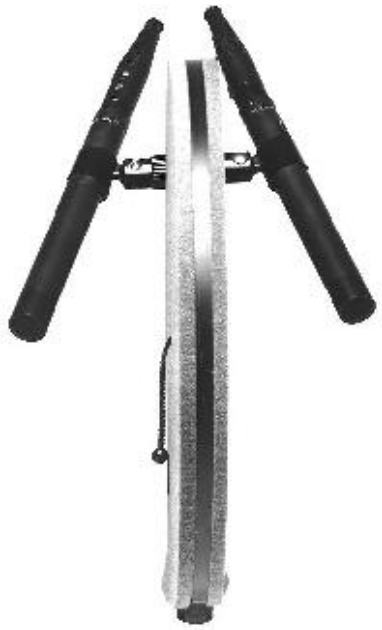
Tutorium



The historical version

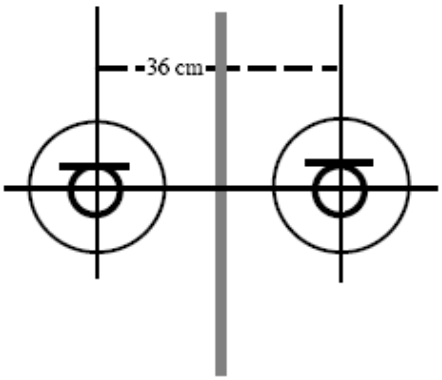
Small microphone base 16.5 cm

This microphone system with a separation baffle between omnidirectional microphones, has been known for years as the Jecklin disc (disk), which Jürg Jecklin developed, a Swiss sound engineer and manager.

- The sound-absorbing "separation-disc" was 30 cm in diameter and the distance between the microphones was 16.5 cm, which comprises the AB microphone base. The microphones should have ear distance and must be pressure transducers. This system was effectively dubbed the "OSS" technique or, "Optimum Stereo Signal" by its inventor and has found a small community of users who would not wish to compromise this human-based stereo recording technique. The dimension of the ideal ear distance seems to have something special both scientific and mysterious, because otherwise when looking at loudspeaker stereophony there is nothing directly human-related present. The acoustic separation of the baffle disk results in level, time, and frequency response that are called spectral differences.

Among professor Jürg Jecklin's scripts at the University for Music and Performing Arts in Vienna (field of tonmeister studies), we can find "New insights into the microphone system with the disk" (Neue Erkenntnisse zum Mikrofonsystem mit der Scheibe), which are generally not well known; see his script here (German):
http://www.mdw.ac.at/upload/MDWeb/derton/pdf/tt03mikrofon.pdf#search=%28Jecklin-Scheibe%29

The new larger Jecklin disc (OSS technology)



New microphone base 36 cm.

Two omni directional microphones are arranged with a spacing of 36 cm and covered with a sheet of foam as an isolating baffle of 35 cm diameter separated acoustically.

With this arrangement, the tonal qualities of the microphones come complete with omni mic characteristic advantage. The right-angle-dependent delay differences arise from the spacing of the microphones, the level and frequency response differences by the acoustic separation of the disc. The two microphones must have a linear diffuse-field response. Ideally suited for this arrangement, the microphone 4006 of DPA (B & K) with black diffuse field attachment.

There is a noteworthy change from the original small version: Instead of 30 cm, the disk now has a slightly larger diameter of 35 cm. But what stands out to an even greater degree, is the greatly enlarged microphone spacing - rather than formerly 16.5 cm as a human "head diameter" (ear distance) there is now a dspacing of 36 cm (double-headed?). Although the two microphones in the figure show parallel to the front, newer research and engineering study suggests that the microphones should be set at an axle angle (angle between the microphones) of approximately ±30° = 60°, to retain optimum frequency response.

The popular esoteric ear distance of 16.5 cm is effectively gone! This configuration comes somewhat as a shock to a community used to working with the older measurements, as evidenced by many refusing to acknowledge the new configuration. Many people continue to work unwaveringly with the old small disk and the human ear distance of 16.5 cm (Jecklin-old) or 17.5 cm (Dickreiter).

The old small disk is still in sales: http://www.thomann.de/de/haun_oss_jecklinscheibe.htm