

compass a larger family of philosophically acceptable 'purist' techniques, including not only my 'phased array' but also systems such as ORTF French Radio's method of using 110° angled cardioids a few centimetres apart.

This particularly novel microphone technique is not proposed as the ultimate in recording, rather another weapon in the armoury of a classical music recordist. Its main advantage is that one can place a pair of microphones further back than previously, which is especially useful in very reverberant surroundings, but still obtain great clarity at the centre of the stereo stage. Working further back, one is also able to place the microphones lower down than previously and this aids string tone quality. Of the 40-plus classical albums I have worked on over the last 12 months, 8 or so have been done using the 'parallel pair' approach and it will be most interesting to observe critical and market response as they appear on sale. Hyperion Records' digital issue of Monteverdi (with Emma Kirkby, Ian Partridge, David Thomas and the Parley of Instruments) was recorded last February in St. Jude's, Hampstead (a highly reverberant church), using this technique with microphones over 30 feet back (9m) from the artists, and gives a good example of the advantages offered, although this record will not unfortunately be available until later in the year. The old rough guide of coming back half the stage-width for placing a

coincident pair seems to be transposed to coming back a whole width with parallel figure of eights, sometimes more.

It is fascinating to look back at Blumlein's 50 year-old patent of stereo techniques. Included is a microphone technique employing two omnidirectional microphones a few inches apart from each other, using electronics to derive 1st order spherical harmonic components from 0th order transducers. With my microphone system I am effectively deriving 2nd order spherical harmonic components from 1st order transducers. Mathematical analysis of the precise mechanisms involved is not too easy to grasp, but there are two basic 'by-products' of this microphone arrangement: a sum component of a figure-of-eight which basically narrows with frequency (hence the zooming-in effect at long wavelengths); and a difference component which comprises a 'clover leaf' (fig. 6) which should prove successful in rear-channel speaker playback à la Hafler.

A microphone system offering ultra-directional polar diagram capability as well as stereophony has applications outside of the classical recording studio, particularly now the Laservision videodisc, with its high quality stereo audio channels, is with us. A stereo microphone which can be used far enough away to be 'out of shot' would obviously be attractive. The only potential drawbacks concern mono compatibility if the

system is set up with the minimum of care, since bad alignment of the capsules will induce spurious phase information varying significantly with frequency and produce comb-filter notching in mono reproduction. However, I must say that in practice I have experienced no difficulties in this respect.

Throughout my experiments I have employed Schoeps capacitor microphones fitted with MK8 'Blumlein Memorial' capsules. Capacitor microphones are used almost exclusively in the record business because of their low noise, extended bandwidth and accurate polar diagrams, and the Schoeps MK8s are unique among capacitor figure-of-eights in being single diaphragm. All other similar professional microphones derive the pressure-gradient pattern by matrixing electronically two adjacent diaphragms one in front of the other. This practice is not ideal, although one reason it is adopted is that it offers the facility of variable polar diagram. My system of microphone arrangement is equally suited to ribbon figure-of-eights (such as STC-Coles, Reslo, Cambridge, Lustraphone) and can be used to broaden the usage of such microphones in highly reverberant surroundings. In my experience, ribbons can give excellent results when used in conjunction with ultra-low-noise pre-amplifiers to boost their relatively low output, and also in conjunction with slight electronic frequency response correction to compensate for the roll-offs at high and low frequencies within the audio band. The Schoeps capacitor figure-of-eights also exhibit roll-offs within the audible range (fig. 7) and throughout my experiments these response losses have been corrected for. I have also experimented with parallel hypercardioid (MK41) microphones with some success, although the pressure component in the polar diagram does tend to give very slight phasiness at the bass end ●

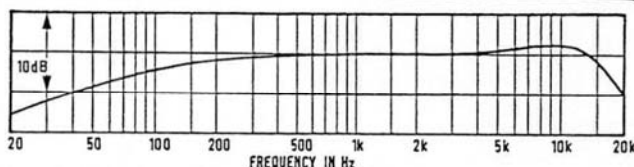


FIG.7 UNEQUALISED FREQUENCY RESPONSE OF SCHOEPS MK8 FIGURE-OF-EIGHT MICROPHONE

Testvorschlag:

Probieren Sie diese parallele Anordnung von zwei Mikrofonen mit Achtercharakteristik im Kopfabstand (20 cm) doch aus und testen Sie, wie die Abbildungsbreite von großen Schallquellen (Orchester) – nicht zu nahe aufgenommen – auf der Lautsprecherbasis erscheint. Ein Problem könnte sein, daß Ihre Achterrichtcharakteristiken vermutlich aus je zwei entgegengesetzten Nierencharakteristiken aus Doppelmembranmikrofonen zusammengesetzt sind und Sie nicht wie Tony Faulkner Einmembranmikrophone mit echter Achterrichtcharakteristik zur Verfügung haben. Im Prinzip sollte es jedenfalls keinen Unterschied geben.

Hinweis:

Sollte Ihnen noch einiges unklar sein, so fragen Sie doch selbst Tony Faulkner in England. Er ist sehr hilfsbereit, wie schon einige Tonmeister-Praktikanten der HdK Berlin erfahren haben, und verwendet sehr gern originale Röhrenmikrophone der Firma Neumann: U 47, U 48, KM 53, KM 54, U 64, KM 66, U 67, M 269, M 49, M 50, SM 2 und SM 23, die er sorgfältig pflegt und die er gerne zeigt.