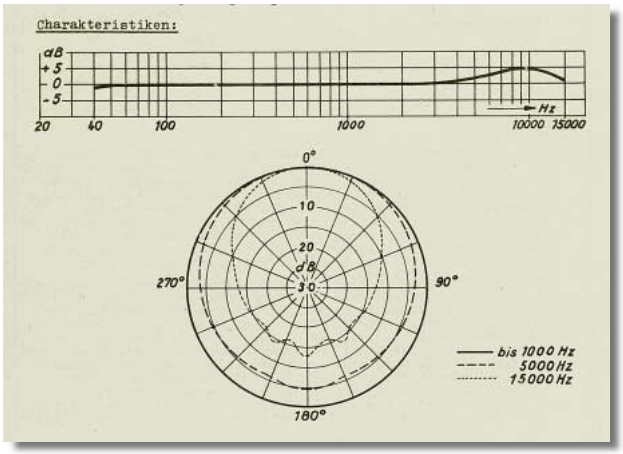
KM 53 – Miniature Microphone

The postwar years in Germany were shaped by reconstruction and new developments in every field. Progress was made in virtually all aspects of studio technology, including radio broadcasting. The introduction of frequency modulation dramatically improved the audio quality by expanding the transmission bandwidth and largely eliminating system noise. This new method allowed for the full audible range of sound to be transmitted intact.

In recording technology the shellac recording disk was replaced by the vinyl record, moving pictures came to rely more and more on magnetic recording technology for sound, and finally a new medium took hold on the scene: Television. This placed additional demands on devices which now not only served to capture sound, but in doing so inevitably also became visible. Of course, we are referring to the microphones.

With regards to the electro-acoustical data, Neumann microphones already fulfilled the needs of the evolving studio technology. Meeting high quality standards for this new medium was easy to achieve but the size of the microphones presented new challenges: the face of a performer would virtually disappear behind the bulk of an M 49 or U 47. The audience no longer wanted to just hear the artists, they ultimately wanted to see them as well! Neumann was thus faced with the



challenge of producing smaller microphones, which, while maintaining their established technical parameters, could also be integrated harmoniously into the television picture.

A practical solution was to take one the smallest existing studio microphone capsules and install it in the smallest possible microphone. The pressure capsule that had been used so successfully in the M 50 microphone (where it was integrated into a plastic sphere) proved to be more than a capable performer when placed in a cylindrical housing of 21 mm in diameter. Thus a new omnidirectional microphone made its world debut in 1953 as the KM 53, "KM" standing for "Kleinmikrophon", or "little microphone". The capsule, originally with a metal diaphragm, was more capable of withstanding the intense heat generated by the bright stage lights of early television than any synthetic film based membranes.

For the standards of that time, the miniaturization was remarkable. A brochure noted: "Despite the dense concentration of miniature components in this microphone type, a high degree of reliability is achieved." The tube chosen for use in the KM 53 miniature microphone was the already proven AC 701 k from Telefunken.

The microphone's acoustic characteristics were described at the time as follows: "Because of this miniature microphone's tiny measurements, the small increase in directivity associated with a desired slight rise in the frequency curve occurs in a free sound field only at high frequencies". The phenomenon is clearly illustrated in the diagrams.

The KM 53 laid the foundation for a successful line of small diameter microphones whose characteristics will be examined in the course of this series.