

You said TFM? Which TFM?

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Ultrasonic Testing (UT) techniques have seen substantial evolution, reaching a pivotal milestone with the advent of Phased Array technologies. Built upon the same probe technology, the Total Focusing Method (TFM) has emerged as the next breakthrough, advancing the frontier of Non-Destructive Testing (NDT). However, TFM is not a single, unified method; it is a broad family of techniques, each with its own set of advantages and limitations. This white paper aims to demystify the simplistic idea that FMC/TFM would be a unique technique, but at the contrary the multifaceted world of TFM by offering a comprehensive classification into various categories, such as SAFT, Elementary FMC/TFM, PWI, CWI, DWI, PCI, Migration, among others. We meticulously evaluate the practical merits and drawbacks of each technique, focusing on key parameters like inspection speed, super-resolution, and de-noising capabilities, to inform a more nuanced selection process. Additionally, we delve into instances where different TFM methods can be synergistically combined for optimal performance across a range of applications. By presenting this in-depth analysis, this paper aspires to arm industry professionals and researchers with the insights needed to select and effectively implement the most suitable TFM technique for their specific needs, thus ensuring enhanced efficacy and precision in NDT operations. Beyond a significant breakthrough in NDT inspection that can be seen as the latest fashion, this family of technique brings a lot also in being user friendly.