

“Wide multispurious bandstop mixed LTCC S-band filters”

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Abstract – In this paper, two main objectives were validated. The first one was to develop and validate a specific hybrid Low Temperature Co-fired Ceramic process mixing both low-permittivity and high-permittivity materials in the same substrate. This approach proves to be very effective in decreasing circuits dimensions. The second objective was to design novel compact S-band filters based on this new technology, with good electrical performances and wide multispurious bandstop. Two-pole bandpass filters were designed for a central frequency $f_0 = 2.5$ GHz and $f_0 = 3.4$ GHz with 14% relative bandwidth and very low insertion losses. They were optimized and manufactured successfully, validating the technology and the theoretical approach. The structures are very compact and present an excellent frequency isolation of the parallel resonant mode, up to $5 f_0$.