# Published Researches
# الأبحاث المنشورة

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| Title<br>عنوان البحث | Development of a Reconfigurable Filter for Cognitive Radio Technique Applications<br>تطوير مرشح قابل لإعادة التشكيل في تطبيقات تقنية الراديو الإدراكي |
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| Source Title<br>اسم المجلة | University of Albaath |
| ISSN | 1649 |
| Q | 2022 - /44/ |
| Link<br>رابط البحث من موقع المجلة | magazine@albaath-uni.edu.sy |
| Abstract<br>خلاصة | • This research presents an analytical method for designing a tunable center-frequency and band-width irreversible band-pass filter. A prototype of low-pass filter is introduced and then its transformed into a parallel band-pass filter using parallel resonators and conductance inverters. All design parameters are given in direct relations depending on the central frequency of the filter, relative band-width, circuit input's resistance and averaging values of the prototype low-pass filter so that the filter can be designed analytically without resorting to the experimental methods.<br>• This research aims to design a tunable filter that can be used in cognitive radio technology applications depending on the microstrip line technology and obtain the best performance at a lower cost.<br>• To prove the validity of the presented method, a fourth-order absorptive band-pass filter was installed and designed with a tunable central frequency (2.9-3.4) GHz and also a tunable relative band-width of (6-10) %. The matching between theoretical results and the results of microcircuit simulation and electromagnetic simulation confirmed the validity of the methodology and conclusions which is provided in this research. |