



US 20240213960A1

(19) **United States**

(12) **Patent Application Publication**
Katsaros et al.

(10) **Pub. No.: US 2024/0213960 A1**

(43) **Pub. Date: Jun. 27, 2024**

(54) **ADAPTIVE FILTER DEVICE AND METHOD FOR PROVIDING AN OUTPUT SIGNAL**

(52) **U.S. CL.**
CPC **H03H 21/0021** (2013.01); **H03H 17/02** (2013.01); **H03H 2017/0081** (2013.01)

(71) Applicant: **u-blox AG**, Thalwil (CH)

(72) Inventors: **Nikolaos Katsaros**, Maroussi (GR); **Olivier Julien**, Thalwil (CH); **Giorgos Tzimas**, Maroussi (GR); **Evangelos Stefatos**, Maroussi (GR)

(21) Appl. No.: **18/393,143**

(22) Filed: **Dec. 21, 2023**

(30) **Foreign Application Priority Data**

Dec. 22, 2022 (EP) 22215947.7

Publication Classification

(51) **Int. Cl.**
H03H 21/00 (2006.01)
H03H 17/02 (2006.01)

(57) **ABSTRACT**

In one embodiment an adaptive filter structure comprises a detector circuit (10) configured to receive an input signal (Sin), to detect a presence of a sweeping interference in the input signal, and upon detection of such sweeping interference to provide a first trigger signal (T1) to a delay circuit (20), wherein the first trigger signal (T1) comprises a first frequency indication (f1); the delay circuit (20) is configured, upon receiving the first trigger signal (T1), to provide a second trigger signal (T2) to a tracker circuit (30) after an adjustable amount of time; the tracker circuit (30) is configured, upon receiving the second trigger signal (T2), to estimate a frequency of the sweeping interference using a second frequency indication (f2), to track the estimated frequency and provide the estimated frequency as a third frequency indication (f3) to a notch filter circuit (40); and the notch filter circuit (40) is configured to substantially eliminate the sweeping interference from the input signal (Sin) using the third frequency indication (f3) and therefrom provide an output signal (Sout).

