

ABSTRACT

DOPPLER TRACKING METHOD AND DEVICE FOR A WIDEBAND MODEM

A system and method for estimating and tracking the frequency offset for a transmission system whose bandwidth is not insignificant with respect to the central frequency, the system transmitting a waveform including fixed carriers whose level is substantially greater than that of the carriers transporting the information, the
5 carriers having frequencies $F_0 \dots F_{N-1}$, and the useful signal carrying the information, comprising at least the following elements:

- N banks (100) of band-pass filters, each bank comprising P filters, suitable for covering all of the values that the frequencies $F_0 \dots F_{N-1}$ may take after Doppler offset,
- 10 • A filter output is connected to a quadratic envelope detector,
- P adders (200) suitable for adding the corresponding outputs of the N banks of filters,
- A system (300) for detecting the position of the two largest maxima from the P sums and for validating the position of the largest maximum,
- 15 • A system (400) for storing the positions of the two largest maxima and their "weight" and for predicting the current value,
- A system (500) for validating/replacing the position found,
- A system (600) converting the positions into estimated Doppler and filtering the latter through a low-pass filter.

20

Figure 2 to be published.