Abstracts

Spectrum correlation of beat signals in the FM-CW radar level meter and application for precise distance measurement

J.C. Chun, T.S. Kim, J.M. Kim, Z.S. Lim and W.S. Park. "Spectrum correlation of beat signals in the FM-CW radar level meter and application for precise distance measurement." 2001 MTT-S International Microwave Symposium Digest 01.3 (2001 Vol. III [MWSYM]): 2251-2254 vol.3.

In this paper, we analyze spectrum correlation of beat signals in the microwave level meter based on the FM-CW radar. For industrial applications, level meters must have high precision, which requires a good linearity of VCO. But, in practice, it is very complicated or very expensive to make VCO linear enough to be acceptable in the industrial field. We propose a measurement algorithm using the fact that there exists a peak in the spectrum correlation of beat signals when range difference is adequately small. This makes it possible to determine the range difference in a precise manner even using a practical VCO. We develop the background theory of correlation and show some results using this algorithm.

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