Abstracts

Ultra-fast broadband EMI measurement in time domain using classical spectral estimation

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In this paper, a novel ultra-fast, broadband time domain EMI measurement system is described. Measurements were performed in the 30-1000 MHz range. The signals from the antenna are digitized and processed by computer in order to obtain Fast-Fourier Transform (FFT) as well as Welch and Bartlett Periodograms. Correction of errors originating from the frequency characteristics of antenna, cable and oscilloscope is made by digital signal processing. With the presented time domain measurement system, the measurement time can be reduced by a factor of 10. The results obtained with the described system have been compared with measurements performed with a conventional EMI receiver. Over the whole frequency range from 30 to 1000 MHz the deviations have been below 3 dB.

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