# The Future of EMC Engineering

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## Defining Who We Are

This is the first in a series of articles that, instead of focusing on technical aspects of EMC design, engineering, testing, and standards which all of us enjoy reading, I am taking a different approach as a contributing editor to examine in a controversial manner who we are and where our career may possibly take us in the future.

In reality we work as an electrical engineer, not an EMC engineer. The field of EMC is one aspect of electrical engineering. Not all products contain digital components or operate at frequencies above 1 MHz. Anything that uses electrical power, either AC or DC, involves the expertise of an engineer. What kind of engineer do you consider yourself (if involved in circuit design – are you an analog engineer or digital engineer)? What about the technology of today with circuits operating in the GHz range. Do you call yourself a digital engineer or a digital microwave engineer? When I ask someone how they classify themselves, they generally respond with either analog, digital or EMC. In reality, there is no such field as analog, digital, digital microwave, or microwave engineering….we are all in reality only one type of engineer-electrical.

The word digital is technically invalid when used in the field engineering. The word digital comes from the word digit and digitus (Latin for finger), as fingers are used for discrete counting [Wikipedia]. A digital engineer is in reality, "An infinitely fast AC slew rate signal engineer." Since putting all these words on a business card is too long, we shorten it to digital. Draw a sine wave and then make the slopes really fast, with a period of time between rising and falling edges. It now looks like a digital pulse. Since there must be a finite time period for a waveform to go from 0V to voltage potential, we can never have a true digital signal, which implies an instantaneous edge transition. Conversely there is no such thing as a digital component. The input and output of every devices classified as digital is in reality an op-amp, which is an analog component. Technically, we are all analog engineers.

In future articles, we will examine technologies that are on the horizon and how the field of EMC will evolve into an even more exciting field.

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