

## Re: mixing waveforms... like for a synthesizer

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- *From:* "Michael A. Terrell" <[mike.terrell@xxxxxxxxxxxxxx](mailto:mike.terrell@xxxxxxxxxxxxxx)>
  - *Date:* Mon, 31 Mar 2008 13:34:46 -0400
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panfilero wrote:

On Mar 28, 10:46 pm, BobG <[bobgard...@xxxxxxx](mailto:bobgard...@xxxxxxx)> wrote:

The word 'mixing' means 'arithmetic addition' to audio guys and 'multiplication' to rf engineers. When you multiply two sine waves, you get the sum and difference of the two waves (carrier freq and modulation in rf language). If one of them has harmonics like a sawtooth, the product is the sum and difference of all the harmonics in each wave. Real complicated and usually sounds like dogbreath. Unfortunate overloading of an otherwise perfectly descriptive term.

Why is combining signals different for audio guys and rf guys? Isn't there only one way to add (or mix) two signals? Which is that old trig formula where you add and subtract stuff... I don't remember it...

In audio they are combining the signals. You feed a lot of similar signals together, and output the sum

In RF they are changing frequency. You add one frequency to (or subtract from) another frequency to get a third frequency.

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