

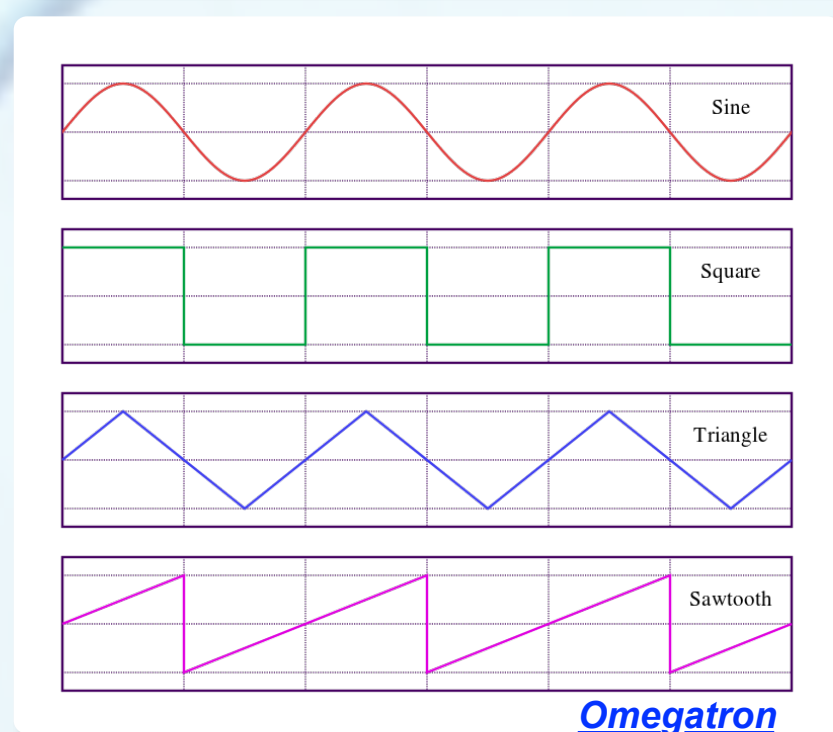
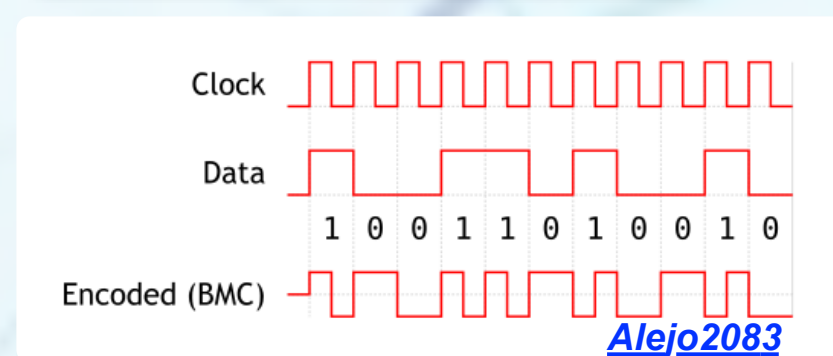
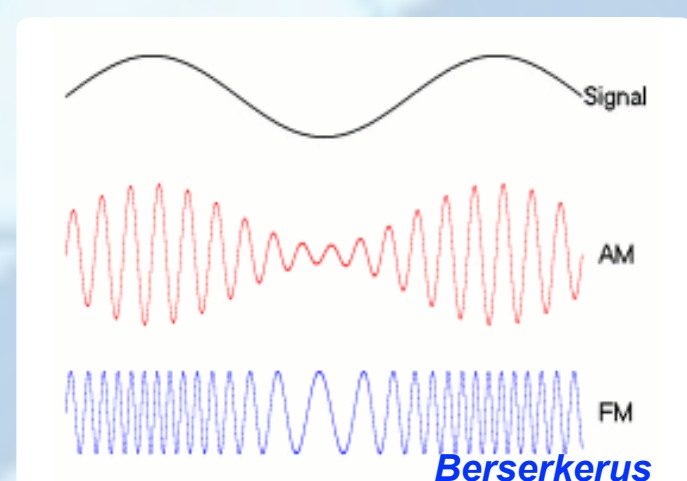
"Modulation signals are one important component in the delivery of EMF signals to which cells, tissues, organs and individuals can respond biologically. At the most basic level, modulation can be considered a pattern of pulses or repeating signals which have specific meaning in defining that signal apart from all others... [It] can be considered as information content embedded in the higher frequency carrier wave that may have health consequences beyond any effect from the carrier wave directly."

[C. Blackman](#)

There are too many known and suspected bioeffects of modulations to be specifically listed on this map. However links are provided so that you may discover details for yourself.

#### IMPORTANT MODULATORY FACTORS

- Modulation frequency, bioactive windows
- Intensity, bioactive windows
- Power, peak power rather than average power
- Frequency/intensity combinations
- Sine wave, shape of pulse -- slope, width, frequency
- Duration of exposure
- Background local static magnetic (earth) field
- Co-exposures
- Electric and magnetic components
- Polarity of field



[SEE: EMF AND NONLINEARITY](#)

[SEE: EMF AND HORMESIS](#)

I call these pulsed signals **aggressive signals**." [Alasdair Phillips](#)★

"Modulated microwave radiation causes periodic alteration of the neurophysiologic parameters and parametric excitation of brain bioelectric oscillations." [H. Hinrikis et al](#)★

"Each type of low-frequency modulation conveys specific 'information', and some modulation patterns are more effective (more bioactive) than others..."

"Modulation is likely a key factor in determining whether and when biological reactivity might be occurring, for example in the new technologies which make use of modulated signals, some modulation (the packaging for delivery for an EMF 'message') may be bioactive, for example, frequencies are similar to those found in brain wave patterns." [C. Blackman](#)

"... parameters of exposure, such as frequency, modulation, duration, dose should be taken into account..."

"signals of mobile communication are completely replaced by other signals faster than once per 10 years..."

"In many cases, because of ELF modulation and additional ELF fields created by the MW sources... it is difficult to distinguish the effects of exposures to ELF and MW." [I. Belyaev](#)

"... dealing with [a] static or an oscillatory field induces a difference in the biological system response... we will focus on the effect of frequencies close to 900 MHz. EMFs in this frequency range may have a continuous sinusoidal waveform, but more often they have a complex amplitude distribution over time." [L. Gherardini et al](#)

Engineers discuss frequency bands. Biologists are more concerned with frequencies, intensities, modulations.

"... calcium transport is profoundly affected when the radiofrequency signal is modulated by specific extremely low frequencies." [L. Brizhik](#)

"Dr. Blackman has conducted far more experiments in his laboratory on this influx/efflux than anyone else. They have shown that calcium ion alteration occurs at particular carrier frequencies, particular signal strengths, particular modulation frequencies and in particular temperature ranges, but not in others which lie between them."

"[Dr.] Blackman stated that EMR must be treated as chemicals (plural) because we have made the mistake of treating it as a single chemical looking for single effects across the whole spectrum, when it is clear that the effects are very significant and occur at particular combinations of variables, but do not occur at a nearby different combination." [Neil Cherry](#)

"... biological tissues contain a significant amount of water, which is known to absorb significantly electrical radiation, while the magnetic component can penetrate deeply in the biological tissues, and can affect them locally deeply inside..." [L. Brizhik](#)

"Part of the problem... is that we have not a clue what constitutes a dose. If you have a chemical, you can weigh it out and you know what the dose is. But with radiofrequency radiation there are too many parameters—power intensity, carrier frequency, length of exposure, signal intermittency or some combination—and nobody knows what's most important." [L. Greenemeier](#)★

"All studies agree that the effect of the sinusoidal ELF-EMF varies in relation to cell type and other parameters, such as frequency, flux density and time exposure." [C. D'Angelo et al](#)

## BIOACTIVITY OF PULSED, POLARIZED, AND MODULATED SIGNALS

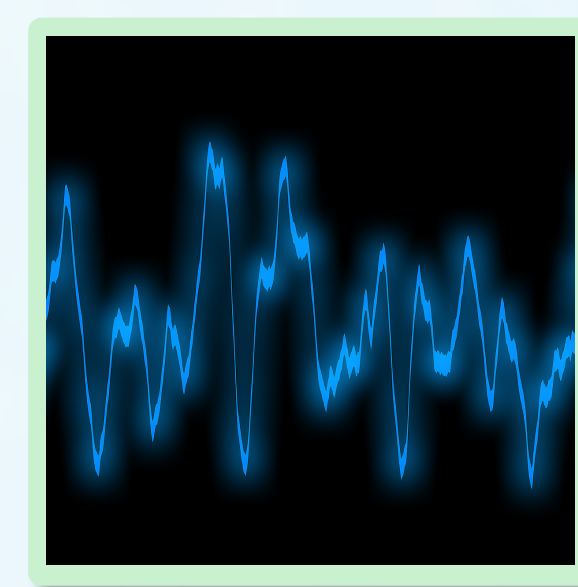
### INTRODUCTION AND LINKS



#### DANGER OF TRANSIENTS

- ★ [Dr. Carlo Video](#)
- [Dr. Carlo History](#)
- [Conversion Formulas](#)
- [Definitions, Overview](#)
- [NaturalHealthNews article](#)
- [Radar frequencies, waveforms](#)
- ["Transient" filters, some problems](#)
- [How is data put on radio waves?](#)
- ★ [How cell signals may cause cancer](#)
- ★ [Smart meters, pulsed RF, cell damage](#)
- ★ [Pulsed MW driving wildlife from NSW Park](#)

#### OTHER LINKS



★ [BIOINITIATIVE 2007: EFFECTS OF MODULATION](#)

★ [BIOINITIATIVE 2012: EFFECTS OF MODULATION](#)

★ [DR. GEORGE CARLO YOUTUBES: DANGER OF EMF - ICRWS \(INFORMATION-CARRYING RADIO WAVES\)](#)

[EFFECTS OF \(MODULATED\) EMF ON ORGANS AND TISSUES](#)

#### Health Effects of EMF

- [PM parameters, brain effects](#)
- [Experimental model, exposure](#)
- [Sleep, CW and PM differences](#)
- [Searching for the Perfect Wave](#)
- [Cognitive processing, CW vs PM](#)
- [Waveform may dictate bioeffects](#)
- [Bioeffects of pulsating MF, solitons](#)
- [Effects and high and low frequencies](#)
- [BB permeability, CW and several PM](#)
- [Redox imbalance after modulated RF](#)
- [Effects of sine and square waveforms](#)

#### BIOEFFECTS STUDIES

- [Biological Effects of Weak EMFs 2012](#)
- [Pulsations makes measurement difficult](#)
- [Brain senses peaks of dialing 3G phone](#)
- [Different waveforms, different bone effects](#)
- [Pulse-modulated RF causes oxidative stress](#)
- ★ [Brain oscillation alterations with modulation](#)
- ★ [EMF, Pulsed RF, adverse child development](#)
- ★ [Square wave MF, Na and K channel functions](#)
- ★ [Pulse modulation, interference patterns, EEG](#)
- [Assessment non-sine., pulsed, intermittent EMF](#)
- ★ [Amp. modulated MW, altered neuronal firing rates](#)
- ★ [Chronic modulated MW, thyroid hormone changes](#)
- ★ [Improved working memory performance with PM?](#)
- [Vertical/horizontal FM polarization: latter carcinogenic](#)