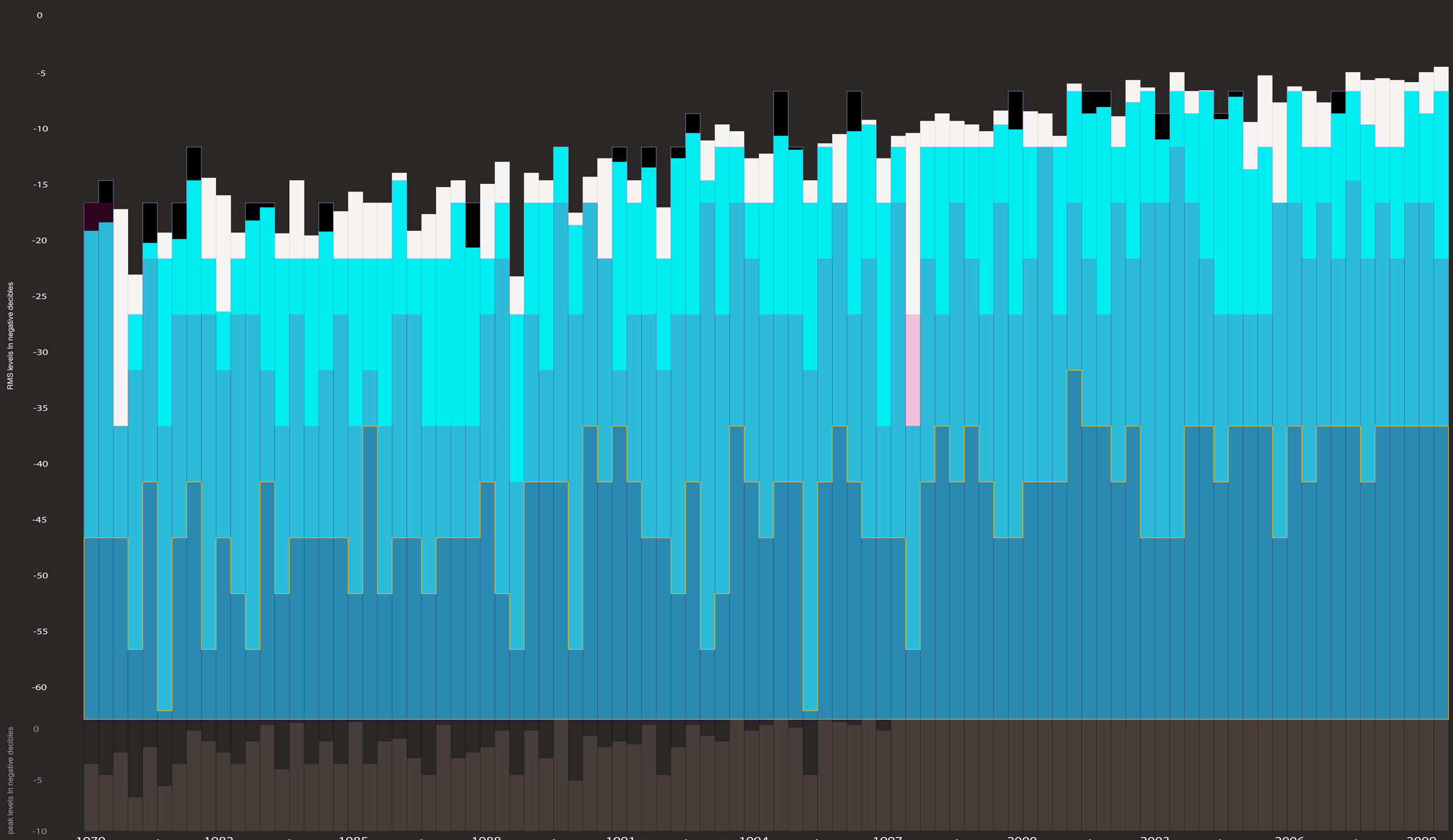


GRAPH KEY

RMS Levels
Low Frequency Peaks
High Frequency Peaks
Mid Frequency Peaks
Absolute Peak Level

SONG KEY

Pop
Rock
Country/Ballad
R&B
Hip Hop

*The absolute loudness of a song is called it's peak level. In a song, this is the loudest part of the loudest instrument. By the mid nineties, the proliferation of CD audio made it possible for sounds to peak at zero, or the maximum volume alloted by the medium. Producers and engineers found a way to increase volume beyond this by increasing the volume of everything in the song, and decreasing the space between the softest and loudest point. The RMS value determines how loud a song is by combining it's peak levels with it's softer levels, so that loudness can be estimated beyond the threshold of zero. Low frequency peaks are the average volume of the loudest sounds in the bass region of the song (100hz). Mid frequency peaks are the loudest sounds in the middle frequencies of the song, which are the frequencies that most everyday sounds are involved with, including the human voice (1000hz). The high frequency peaks are the loudest sounds in the higher, less audible sections. The human ear is very sensitive to these frequencies so volumes tend to remain lower as other frequencies rise (10000hz). The data presented is pulled from the primary chorus, or most definitive moment of each song. Three songs were selected from each year over the last three decades, one from each trimester, with precedence given to songs with the most weeks at number one, as well as musical diversity by genre and artist. For help understanding what this data means, see the **understanding RMS, dynamic, and frequency section.***

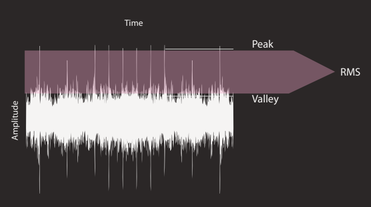
A Visual History of Loudness

Why your music is getting louder, and why it's a problem

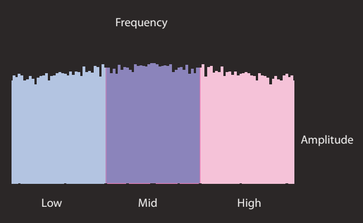
***Over the last thirty years**, and even before, the music we listen to has been getting louder. And I don't just mean more aggressive and angry. It's physically getting louder. Because louder music creates a more immediately pleasing effect on the listener, record execs have been ordering the volume knob cranked up for the last three decades. This could be chalked up to harmless capitalism, but the problem is that audio can only get so loud before it begins to lose all the stuff that makes it so good. Once you compress the peaks and valleys of rhythm and sound too far, it becomes the visual equivalent of typing in all caps: All the loud sounds are loud and so are all the soft ones. The dynamic of sound, or the part of music that makes it funky or groovy or smooth or mellow or punchy or whatever you like, is suddenly being pushed to what is more or less white noise, merely for a chance at that #1 spot. Compiled here are 93 chart toppers from the last thirty years: the biggest hits from each trimester of every year from 1979-2009. Follow the numbers and you may find, like so many record producers and mastering engineers already have, that the situation is far more dire than it seems.*

Understanding RMS, Dynamic, and Frequency

RMS is an average of the high and low peaks in a time based sound wave, such as the figure below.



Frequency is a portion in the audio spectrum. A frequency chart, such as the one picutred, shows all amplitudes for all relevent frequencies at a single moment in time.



Dynamic is the amount of space between the loudest point and the softest point in a song.

Here is what a visual diagram of what a song might look like around 1979. Notice that the highest points in the sound still only peak at about -4 or -5 decibels. This is like a beautiful painting with a generous matte around it.

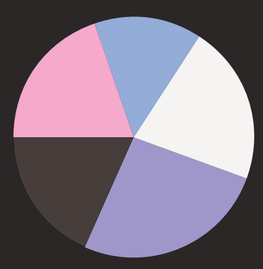
Here is what a popular song might look like in the early nineties. Notice how the peak is regularly hitting zero? This would be like if i took my painting and expanded it all the way to the edges.

By the early 00's, new digital technologies allowed producers to push the lower levels of the song up even louder without distorting the peaks. This would be like me blowing up my painting outside of the frame.

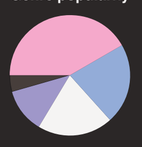
It is not uncommon, in more extreme situations, to see songs today that look like this. it would be the equivalent of blowing up our image so that only a small portion is visible.

Who's Who in the Loudness Wars

Average Loudness by Genre



Genre popularity



Total Loudness by Genre

Loudness by Decade

Data based off genre by wikipedia and a mean average of songs over thirty years. Loudness by decade calculated as inverse of negative decibals from zero. Loudness statistics found using Destroy FX's RMS buddy, Blue Cat's Freqanalyst, and Sonalksis' Free G stereo.