

# Why Bass?

## A Deeper Look At The Broad Appeal Of Lower Frequencies

*by Aaron Nemec*

It is a daily occurrence that I cross paths with loud music being emitted from another car. I may recognize the song or the artist, but for the most part neither particularly matters because often (if not usually) the song itself is diminished amongst deep bass vibrations. These instances illustrate how the music listener can be what Glenn Gould describes as a “usurper of power” by way of their tonal preferences. It is a disruption of the “familiar hierarchical setting of the musical establishment” from composer, to performer, to audience.

Over the past 30 years, amplified bass has become a dominant tonal preference in everyday music listening. This phenomenon can be traced historically through pop cultural trends and technological advances. It can also be connected to the physiological effects of sound.

The range of audible sound frequencies for the human ear is between 20 Hz and 20 kHz (20,000 Hz). Bass is considered to exist at frequencies of about 250 Hz and below. To put that range into context, the lowest key on a standard 88-key piano emits a frequency at 32.70 Hz and the fourth C key, referred to as “Middle C,” is 261.63 Hz.

Beneath the 20 Hz threshold of audible sound is infrasound. The physiological effects these extremely low frequencies have on humans are well-documented. In 1957, Russian/French physicist Vladimir Gavreau discovered that the nausea amongst fellow workers at a research plant was caused by low frequency sound waves that originated from the building's air conditioning system and manifested within the concrete duct. This revelation led Gavreau to the development of various sound weapon prototypes. He and his crew initially used themselves for testing these experiments. The results were unexpectedly successful, causing severe strain to their eyesight, muscles, and internal organs. There is also a US patent on file for the “Subliminal Acoustic Manipulation of Nervous Systems” that harnesses the effects of infrasound, “for control of insomnia and anxiety, and for the facilitation of relaxation and sexual arousal.” The physiological effects of extreme bass generated by infrasound are believed to also have religious implications. A 2002 study was done in which it was determined that frequencies similar to those generated by organ pipes in churches had subliminal effects on the audience. During moments of infrasonic blasts set to a frequency of 17 Hz, participants reported feeling increased heart rates, anxiety, and memory of emotional loss. Another 1998 study developed by Vic Tandy and Dr. Tony Lawrence of Coventry University measured how the presence of infrasonic tones similar to the resonant frequency of the eyeball might generate optical illusions. Tandy believed there to be a connection between the presence of these sound-generated illusions and locations thought to be haunted by the supernatural.

The physiological effects of infrasound are a dramatic illustration of how bass relies on being felt as much as it does being heard. The birth of the digital age in the early 1980s made it possible to record, manufacture, and distribute music that used these frequencies. Before music was mass-produced in CD format, the lowest ends of bass were reduced or edited out of recordings since attainable tones only went as deep as the groove of a vinyl record allowed. Digital reproductions were able to reduce these bottom lows to mere numbers, without any mechanical limitations. Until music became widely available on the CD format, audiences could only experience feeling bass during live performances. The CD domesticated bass, objectified it and made it a possession. Audiophiles and audio engineers could tweak equalizer levels and design components to maximize the performance of stereo equipment within this

new realm of listening. Eventually stereo systems and portable music-playing devices like boomboxes simplified this bass-centric trend in audio performance. They came equipped with specialized bass amplifying features that were labeled Mega Bass, Bass Boost, or Extra Bass to market their ability to amplify low frequencies. Some activated with a mere push of a button.

As the popularity of the CD format was taking shape in the 1980s, there was a simultaneous growth in the popularity of rap music. This new genre relied heavily on synthetic beats produced from drum machines. Beats generated by the Roland TR-808 drum machine became a prominent backdrop for the rap instrumentations in the 1980s and even helped generate one of the earliest rap subgenres, Miami Bass. While Miami Bass was musically driven by the kick drum of the TR-808, it came to be defined by the sexually explicit themes embraced by groups like 2 Live Crew. The connection between driving bass rhythms and sexually charged content has inseparably linked the terms "bass" and "booty". Another defining element that became intertwined with Miami Bass is the automobile as both a vehicle for cruising and for mounting a sound system that could handle the lowest bass frequencies. New York DJ Marley Marl, who claims to have introduced the TR-808 to the Miami scene, even states that some rap music is produced specifically for playing in the car, "you won't get the same effect if you play the tracks through a regular system; you need a hype car system." The music was designed to massage passengers with thumping bass tones that vibrated the car seats. The visual aesthetics of bass in turn relied heavily upon images of cars and sexualized female forms within a colorful Florida palette.

In the 1990s bass exploded into the mainstream pop music culture while riding the rising popularity of rap music. Songs influenced by the Miami Bass sound achieved commercial success, including "Whoot, There It Is", "Whoomp! (There It Is)", "Tootsee Roll", and "C'mon N' Ride It (The Train)." Rap, the genre as a whole, had branched from urban subculture into suburban culture. A shift had occurred. Rock celebrities were being displaced by rap celebrities.

The popularity of rap to this day stretches across a wide range of demographics and extends the popularity of bass tones beyond the confines of a single genre. Low frequencies are amplified by listeners of all music styles, whether they are listening as social practice or alone in their car. Perhaps it is a physiological effect that sent us into a spiral of bass addiction. Whatever the cause, there appears to be a tendency to turn up the bass before the volume knob is even touched, or the station is changed.

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