Hypersonic sound waves

The term hypersonic effect has also been used to describe airflow in supersonic aerodynamics, hypersonic flight study. [1] [2] Hypersonic effect is a phenomenon reported by Tsutomu Oohashi et al. [3] in a controversial scientific study which states that although humans do not consciously hear ultrasound (sounds above 20 kHz), the presence or absence of these frequencies has a measurable effect on their physiological and psychological reactions. Several other studies contradict the part of the results related to the subjective response to high frequency sound, finding that people with good ears[8] are listening to Super Audio CDs and high-resolution DVD audio recordings[9] for high-fidelity systems that can play sounds up to 30 kHz[10] cannot distinguish between high-resolution sound and standard CD discretion at 44.1 kHz. [8] [11] [12] [13] Favouring evidence in 2000. Subjects were not consciously able to distinguish, but when they were played with hydrofluorocarbons, they showed differences that were measured in two ways: eEG monitoring of their brain activity showed statistically significant improvements in alpha-wave activity. the demonstrated effect was only demonstrated when comparing the full bandwidth with the bandwidth-limited material. It's a common understanding of psychoactics that the ear can't react to sounds so high frequency through the air conduction pathway, so one of the questions that this study raised was: does the hypersonic effect take place through the normal path of sound travel through the air passage through the ear, or otherwise? The 2006 peer review study seemed to confirm the second of these possibilities by testing the different effects of hfcde when presented through speakers or headphones – no hypersonic effect when HFCs were presented through headphones. The 2006 study also examined comfortable listening level (CLL) music with and without HFCs, which is an alternative way of measuring an object's response to sound. The music cll with HFCs was higher than for music without HFCs - it provides a quantitative way to demonstrate the overall listener's preference for music with HFCs. [15] The evidence to the contrary in Oohash's results is contradictos. [3] [12] The Oohash study did not reveal an effect on listeners if only ultrasound (frequencies than 24 kHz) part of the test material. The verified effect was only present when comparing the full bandwidth width with the bandwidth material. The bandwidth-limited material was rated more by test subjects when the full-band material was played just before it. Research by nhk laboratory has tried to reproduce oohash's results carefully but unsuccessfully. [12] [16] [1980] [12] System non-linearity (occurring to varying degrees in all audio reproduction electronics, speakers, etc.) is known to produce lower frequency intermodulation products when the system is stimulated by high frequency signals. It is recommended that this mechanism could generate signals in the sound range that allow listeners to distinguish between signals. [12] [17] Such artifacts are a common problem, for example, with computerised hearing self-tests. In September 2007, two members of the Boston Audio Association and the Audio Engineering Society published their own study, in which about half of the 554 double-blind ABX test listening tests by 60 respondents showed correct detection of high-resolution or CD-standard sampling rates. The results were no better than a coin reversal, producing 274 correct detections (49.5% success), and it would have required at least 301 correct identifications, which gave 554 attempts (a modest 54.3% success rate) to exceed the 95% statistical confidence-based difference that happens about once in twenty such tests. [8] The evidence to the contrary is the criticism of The Oohash studies, which is mainly aimed at conclusions on listener preferences in the test materials. criticism of the physiological aspect of the studies has been little criticised. The studies cited as evidence to the contrary did not address physiological brain reactions to high frequency audio, but only the subject's conscious response to it. Further examination of the observed physiological response appears to show that the ear alone does not produce additional brain waves[12], but when the body is exposed to high frequency sound, it provides some brain stimuli. [19] [Inspection required] See also ultrasonic auditory sound ultrasound (known commercially as HyperSonic Sound) Links ^ Aeronautia Sciences Journal, Volume 25, p. 187. Institute of Aeronautical Sciences (USA), American Institute of Physics, 1958. In 2004 Tamm became chief of staff of the island. Birkhäuser, 2006. ISBN 0-387-26140-0 ^ a b c. Oohashi, E. Nishina, M. Honda, Y. Yonekura, Y. Fuwamoto, N. Kawai, T. Maekawa, S. H. Fukuyama and H. Shibasaki. Inaudible high frequency sounds affect brain activity: Hypersonic effects. Journal of neurophysiology, 83(6):3548-3558, 2000-2001 1999 Hearing limits exceeding 16 kHz for pure tones. American Acoustic Society diary. 122 (3): EU52-EU57. Bibcode:2007ASAJ.. 122I. 52A. doi:10.1121/1.2761883. Issn 0001-4966. 22 kHz in 2001. In 2004 Tamm became chief of staff of the island. in May 2005. In 2004 Tamm became chief of staff of the island. october 2003. Paul D. (2008-04-01). The emperor's new sampling rate. Mix. Archive for the original 04/11/2008. In 2004, Tamm became the island's chief of staff. David R. Moran. september 2007. Audio from the CD standard A/DA/A loop: sources, venues, and devices inserted into a high-resolution audio playback. Boston Audio Society. on 14 October 2009. In 2004, Tamm became the island's chief of staff. S1266, don't you understand. on 14 October 2009. In 2004, Tamm became the island's chief of staff. David R. Moran. september 2007. Audio-loop of CD standard A/DA/A inserted into high-resolution audio playback. AES E-library. October 13, 2009- June 2006- Do we need ultrasonic bandwidth to reproduce the sound of greater fidelity? (PDF). Institute or acoustics procedures. 28 (8). In 2004, Tamm became the island's chief of staff. Hamasaki, Kimio; Ono, Kazuho; Iwaki, Masakazu; Ando, Akio (07/01/2009). Pertal discrimination against very high frequency components in a wide range of musical sounds. Applied acoustics. 70 (7): 921-934. doi:10.1016/j.apacoust.2009.01.002. In 2019, Thailand became the 199th country in the world to have a new country. The role of the biological system after hearing air conduction occurs with hypersonic effects. Brain Research, 1073:339-347, February 2006. In 2004, Tamm became the island's chief of staff. Hamasaki, Kimio; Iwaki, Masakazu; Ando, Akio (2004). Perceptual discrimination between musical sounds with and without very high frequency components. on 26 June 2012. Cite magazine requires |journal = (help) ^ Black, Richard (1999). Anti-Alias Filters: Invisible Distortion Mechanism for Digital Audio?. Audio Engineering Society. Cite magazine calls |journal = (help) ^ Griesinger, David. Perception of mid frequency and high frequency intermodulation distortion of loudspeakers, and its connection to high-definition audio. April 27, 2018 Oohashi T, Kawai N, Nishina E, Honda M, Yagi R, Nakamura S, Morimoto M, Maekawa T, Yonekura Y, Shibasaki H. Role of biological system, except for conduction of auditory air in the event of hypersonic effects. (Pubs announced as yet to be dated) Ministry of Research and Development, International Science Promotion Fund, Tokyo 164-0003, Japan; National Institute of Information and Communications Technology, Koganei 184-8795, Japan From Hypersonic® audio (HSS®) is an audio technology that uses interaction between ultrasonic waves and air to create sound. Radically different from traditional speakers, HSS® devices indirectly generate sound so that they do not suffer from distortions found in many other devices. Hypersonic® can also be used to target a very specific area, much like the spotlight focuses on the light of a narrow beam. The technology was invented by Elwood Woody Norris American Technology Corporation, but has struggled to find a market. Traditional loudspeakers generate sound, vibrating fixed material that generates waves of pressure that move through the air. Hypersonic® the sound takes a completely different approach and emits ultrasonic tones that the human ear cannot hear. These ultrasonic tones in turn generate sound from the air molecules themselves. This is possible because air is a nonlinear feature, which means that sound tones both lower and higher frequencies can be produced when the air interacts with sound. Ultrasonic tones can therefore generate sound frequencies when exposed to air molecules. Since HSS® not directly generate sound waves, they have some advantages over ordinary speakers. HSS® polluter does not suffer from various distortions caused by the mechanical elements of the speaker. The polluter can be relatively small and easy yet to create high-quality sound. The volume of sound does not change over a fixed distance, so that HSS® can be used at the concert and the sound at the same level behind the front row. Perhaps the most important benefit of Hypersonic® technology is the ability to emit sound in narrow beams that can be directed to a specific location or individual. Everyone inside this beam hears the sound, while those outside the beam, perhaps only a few feet away, can hear nothing. This ability has many potential applications for targeted advertising surround audio channels that do not require speakers or wires. While Hypersonic® has clear potential and has been met with praise from several media outlets, the technology has been limited to commercial success. American Technology Corporation, which developed the technology and holds a number of related patents, originally adopted a strategy that avoided competing with large consumer electronics companies. Instead, they tried to turn out into a niche where audio was historically not used, such as vending machines. At the time, the company shifted its focus to making ultrasonic devices for the U.S. military. In 2010, Hypersonic® sound business was spun-off to a new company called Parametric Sound, with Woody Norris leading the new company. Company.