WHAT'S IN A NAME?

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The official American lexicon for acoustics, ANSI S.1-1994 (R2004) American National Standard Acoustical Terminology,[1,2] is currently undergoing its first major revision in over a decade. As the "-1994 (R2004)" in the full name implies, the last major update was in 1994 and it was last "reaffirmed" in 2004. The decision to revise ANSI S1.1 was due to the fact that the errata list has grown over the years. In addition, some new definitions have been introduced, and a number of stylistic changes are being made for clarity. Many references have also been updated or added.

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It is perhaps fitting that the terminology standard is numbered first in the S1-series (acoustics) of standards—it is the most fundamental standard, which is referenced by all other standards. It was also, in fact, the first acoustical standard. Its genesis can be traced back to the second meeting of the Acoustical Society of America in 1930,[3] where the Committee on Acoustical Standardization was formed. The first task of the committee was to standardize the language of the members of ASA. By January 1931, they had produced a list of 160 definitions, which was published in JASA.[4] The list fell under seven subject headings, which included general, architectural, hearing, music, sound transmission, hearing aids and audiometers, and transmission systems. The list of definitions was further refined to include units, scales, and additional tables. The work culminated with the publication of an official terminology standard, which can be found in the July 1937 issue of *JASA*.[5] This standard has evolved into the current S1.1 standard.

The purpose of the terminology standard is manifold. At its most basic utility, it provides standard reference levels, constants, units, and abbreviations, as well as equations for computing basic quantities. The reference list is also handy, since it indicates where more in-depth information can be found. Perhaps more importantly, it provides a common vernacular to facilitate communication between acousticians. I find this common language especially important in teaching, where I often refer to standards in my lectures. Alternately, I may task my students with finding the relevant standards governing particular areas of acoustics and vibrations as part of their homework assignments. Standards can also be very appropriate references for technical publications.

The 13 clauses of ANSI S1.1 cover most branches of acoustics and electroacoustics: 1) Scope, 2) Normative references, 3) General, 4) Levels, 5) Oscillation, vibration, and shock, 6) Transmission and propagation, 7) Transducers and linear systems, 8) Acoustical apparatus and instruments, 9) Underwater acoustics,10) Sonics and ultrasonic testing, 11) Architectural acoustics, 12) Physiological and psychological acoustics, and 13) Musical acoustics. Because the number of definitions has grown so large in the fields of shock and vibration (S2) and bioacoustics (S3), these groups have developed their own, more in-depth terminology standards.[6-8] A separate set of definitions may also be produced in the future for the field of animal bioacoustics.

Members of the Acoustical Society of America may download the terminology standard for free (a $150 value) as a member benefit. Members can log into the on-line standards store[9] and click the box that says "Members get your free terminology standard." Other publications, including standards, are 25% off for members. The classroom acoustics standard is also free, due to industry sponsorship.[10,11]

Although the revision of S1.1 is nearing completion, it is not too late to provide input. A very talented and diverse group of 18 experts have been assembled to revise the standard. We are in particular need for additional support for the clauses 10 and 11 on underwater sound and sonics/ultrasonics, respectively. To provide input on these or any clauses, please contact myself or Susan Blaeser, Standards Manager for ASA (asastds@aip.org).**AT**

References for further reading:

1 ANSI, S1.1–1994 (R2004) American National Standard Acoustical Terminology (Acoustical Society of America, Melville, NY, 2004).
2 ANSI, S1.1 Erratum (Acoustical Society of America, Melville, NY, 1994).
3 Tony F. W. Embleton, Paul D. Schomer, and Susan B. Blaeser, "History of Acoustical Standards in the Past Eighty Years," Lay language paper prepared in connection with the 75th Anniversary Meeting of the Acoustical Society of America, New York, NY, May 2004, http://www.acoustics.org/press/147th/standards.htm.
4 Report of Committee on Acoustical Standardization, Acoustical Society of America, J. Acoust. Soc. Am. **2**(2), 311–24 (1931).
5 H. A. Frederick, "American Tentative Standard Acoustical Terminology," J. Acoust. Soc. Am. **9**(1), 60–71 (1937).
6 ANSI, S3.20–1995 (R2003), American National Standard of Bioacoustical Terminology (Acoustical Society of America, Melville, NY, 1995).
7 ANSI, S3.20 Erratum (Acoustical Society of America, Melville, NY, 1995).
8 ANSI, S2.1–American National Standard Vibration and Shock – Vocabulary. (Acoustical Society of America, Melville, NY, 2000).
9 ASA Store online, http://asastore.aip.org/
10 ANSI, S12.60–2002 American National Standard Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools (Acoustical Society of America, Melville, NY, 2002).
11 Additional free classroom acoustics publications can be found at http://asa.aip.org/classroom.html

Jeffrey S. Vipperman is an Associate Professor of Mechanical Engineering and Materials Science at the University of Pittsburgh, where he founded and directs the Sound, Systems and Struc-tures Laboratory. He has performed acoustics research for nearly 20 years in the areas of active/passive noise and vibration control, hearing loss prevention, structural acoustics, and automated noise classification. Over 70 papers and 120 talks have been authored or co-authored by Dr. Vipperman. He currently chairs Working Group 27 to revise ANSI S1.1 and is a member of the Structural Acoustics Technical Committee of the Acoustical Society of America. In addition, he is also a member of the Institute of Noise Control Engineering (INCE) and the Executive Committee of the Noise Control and Acoustics Division for American Society of Mechanical Engineers (ASME), where he also chairs the Active Noise Control Technical Committee. He received his BS and MS degrees in Mechanical Engineering from Virginia Tech and his Ph.D. in Mechanical Engineering from Duke University.