ACOUSTICS STANDARDS ACTIVITY IN CANADA - 2011

Tim Kelsall
Hatch, 2800 Speakman Drive
Mississauga, Ontario L5K 2R7, tkelsall@hatch.ca

ABSTRACT

This article is an update for 2011 of Acoustics Standards activities in Canada, It lays out the new organisation of Canadian activities in developing, reviewing and reporting on acoustical standards, both in Canada and around the world.

RÉSUMÉ

Cet article est une mise à jour des activités de normalisation en acoustique au Canada pour 2011.

1. INTRODUCTION

Canadian acoustical standards activity in Canada has had large changes over the last few years and 2011 has seen the culmination of all this activity.

In 2009 CSA announced that they were going to drop or severely scale back their Z107 technical committee which since the 70's had been the main acoustical standards group in Canada. They offered the Canadian Acoustical Association the opportunity to take over standard Z107.10, which had become their main way of endorsing acoustical standards from around the world. The board of directors unanimously agreed to form a new Acoustical Standards Committee and it held its first meeting in 2009 at the CAA conference in October. The CAA was actually formed in 1963 As the Canadian Committee on Acoustics, intended to organise acoustical standards in Canada. The CAA has a long history of involvement with acoustical standards, including hosting Z107 at their annual meetings.

The CSA re-examined the acoustical standards they had and decided that they would like to continue to look after occupational noise and vibration standards, bringing the former Z107 standards across to their TC 94.2 committee which looked after a single standard on hearing protectors. The new CSA Technical Committee on Occupational Hearing Conservation S304 was formed, with the following mandate:

- Hearing conservation management systems;
- Workplace noise and vibration measurements;
- Determination, measurement, and assessment of occupational exposure to noise and vibration;
- Strategies for reducing exposure to noise and vibration in the workplace.

This committee held its first meeting in May 2010 and this was organised as a joint meeting of both the CSA and CAA committees. Since that time both committees have met jointly in May at the CSA headquarters and in October as part of the CAA Acoustics Week in Canada conference.

2. CSA Z1007: Management of Hearing Conservation in the Workplace – Jeff Goldberg

CAALL-OSH, the Occupational Safety and Health Committee of the Canadian Association of Administrators of Labour Legislation, agreed to fund the development of a new Canadian standard on Hearing Conservation Management. This would be part of CSA´s OHS Management systems standards series. It would encompass prevention of occupational hearing loss, control of noise in the working environment and be applicable to all occupational sectors and to all workers and occupations. This work was undertaken by SC1 chaired by Jeff Goldberg, and has just completed the first draft of the standard.

3. CSA Z94.2 - Hearing Protection Devices - Performance, Selection, Care, and Use – Alberto Behar

S304 is still responsible for the Z94.2 standard on Hearing Protection. For many years this standard has advocated the use of type A,B, and C hearing protectors. While a good and simple system, this categorization of hearing protectors has not become widely used, primarily because most protectors are also marketed in the US, where by law they must be labeled with the protector's NRR rating, and this is the system most commonly used by Canadians because it is more visible.

The NRR system was put in place in 1974, and has not

changed since that time. Meanwhile, expert opinion has come to realize that there are severe flaws in the system. The primary problem is that the number shown grossly overstates the actual protection provided in the workplace. Z94.2 is advocating the NIOSH approach to derating the NRR ratings. For example an NRR rating of 30 for a slow recovery foam earplug actually reduces the sound level at the ear by about 8 dBA in practice compared to the sound level outside the protector.

ANSI in the US recognized the problems and developed new more representative subject fit testing methods but so far the EPA has not adopted them, instead proposing a dual percentile label which is rather complicated to use. At this point the EPA has not come out with a final solution and this makes it difficult for the CSA writing group to come to a conclusion, although otherwise they have drafted a new version of the standard which is nearly ready for balloting.

4. CSA Z107.56

The most widely used of the Z107 series, 56 covers the measurement of occupational noise exposure and was the first standard to do so. A new version is now being proposed which will extend its scope to cover noise exposure under headsets, which is a serious concern for pilots, call centre operators, drive through attendants and many others. The new approach has been described in References 1 and 2 and encompasses measurements with probe microphones in real ears, measurements using mannequins and artificial ears and a new calculation method using the NR of the headset and the measured sound level outside the headset.

The use of probe microphones and mannequins is covered by Australian and international standards, to which the new version refers. However the calculation method is new. It is intended to be a low cost initial assessment compared to the other systems. If the calculation method shows a possible concern it may well prove cheaper and certainly more effective to reduce the noise exposure in many cases than to undertake the more advanced measurements.

5. CSA Z107.58

This standard describes in one location all that Canadians need to know to navigate the variety of standards, codes and regulations which make up the system whereby the sound produced by machinery is documented and available to prospective buyers and users. Health Canada has recently recommended its use by Canadian industry and a new version is expected which will update the constantly changing standards on which the system is based. This system can help industry to buy quiet equipment and help manufacturers provide prospective purchasers with accurate information about sound levels produced by their equipment. Reference 3 provides more detailed information about the standard.

6. CSA TSC on Wind Turbines - Acoustic Noise Measurement – Brian Howe

This subcommittee of the CSA Technical Committee on Wind Turbines helped this group adopt IEC 61400 Part 11: Acoustic Noise Measurement Techniques, for use in Canada. This provides an internationally recognized approach to measuring and characterizing the noise produced by wind turbines, which can then be used to assess the expected community impact.

7. CAA Standard 101 (formerly CSA Z107.10)

At this point the only standard under the auspices of the CAA, this is a compendium of Canadian, US and International standards of interest to Canadians. It provides a short description of each standard and any items that should be borne in mind when using them within the Canadian context. To ensure that it is representative, the committee is currently developing voting procedures and memebership guidelines to recommend to the board.

Look for this standard sometime in the coming year on the CAA website. It provides one of the best reviews of acoustical standards available anywhere and indicates the standards considered most useful to Canada. The intent is that this document will be the entry point for Canadians and others needing to understand acoustical standards. To ensure that it is complete we invite any and all CAA members to propose for consideration other standards which should be included in the document. Simply send a recommendation and brief write-up to my attention as chair.

We expect the standard will be freely downloadable and provide links to each standard it discusses for those requiring more information. We will be looking for sponsors for this website when it appears.

8. Standards Council Steering Committees

The Standards Council of Canada has steering committees involved with major international standards groups, including:

ISO TC 43 SC2, Building Acoustics – David Quirt – This group Includes both the ASTM and ISO building acoustics groups and tries to advise on which group provides the best standards for Canada.

IEC/TC 29: Electroacoustics, Lixue Wu. – This group has provided Canadian input into acoustical instrumentation for decades and is well respected internationally.

ISO TC43 (Acoustics) and TC43(1)(Noise) - Stephen Keith – This group covers the majority of international acoustics standards.

ISO Vibration Standards ISO 2631, ISO/TC108/SC4 – Tony Brammer – For years Tony has been the chair of ISO 2631 and provided Canadian input to that body, as well as helping Canadians understand the effect of vibration on people.

These groups meet under the auspices of the CAA Standards Committee to coordinate their activities and report the results.

For those wishing more detailed information about any of these many activities, the CAA website has copies of committee meeting minutes which cover the topics in considerably more detail than is possible in a review article and the reader is referred to this resource.

REFERENCES

1. Alberto Behar, Christian Giguère, Tim Kelsall, Measurement of noise exposure from headsets, NOISE-CON 2008, 2008 July 28-31.

2. Alberto Behar, Christian Giguère, Tim Kelsall, CSA Appendix on Measurement of Noise Exposure from Headsets, Canadian Acoustics, September 2008.

3. Stephen Keith, Stephen Bly, Tim Kelsall, A preview of the Draft CSA Guideline – Noise Emission Declarations for Machinery, Canadian Acoustics, Volume 29, No. 3, September, 2001.