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STANDARDS FOR SOUND SYSTEM ENGINEERS

J. M. Woodgate

J. M. Woodgate and Associates, Rayleigh, Essex

1. INTRODUCTION

Since 1990, there has been a very considerable increase in the impact of, and interest in, standards. This has been largely prompted by the publicity surrounding the quality systems standard BS5750/ ISO9000 and the European Community Electromagnetic Compatibility (EMC) Directive, which was a major topic at *Reproduced Sound 7* in 1991.

Like any other specialised field, standards have their own language, and as in computer technology, there ar far too many acronyms. However, no sound system engineer, whether consultant or trainee technician can now afford to be ignorant or complacent about the standards which apply to his or her activities.

2. WHERE DO STANDARDS COME FROM?

There are several different sources of standards:

- International: produced by the International Electrotechnical Commission or the International Organization for Standardization (ISO, *note not IOS)*
- Regional, mostly European: produced by the European bodies CEN, CENELEC or ETSI
- National: produced by national standards bodies such as the British Standards Institution (BSI), the corresponding German body (DIN) and the United States body (ANSI).
- Transnational: produced by learned and/or professional societies such as the Audio Engineering Society (AES), the Society of Motion Picture and Television Engineers (SMPTE), *but not (yet) the IOA!*
- International Telecommunications Union: formerly CCIR, CCITT and

CMTT Recommendations: the CCITT and CMTT documents are regarded as standards but those of the CCIR are strictly recommendations rather than standards

• National or transnational industry: produced by Trade Associations and the like in one country, or by bodies such as the European Broadcasting Union (EBU) on a transnational platform.

It should be clearly understood that VERY FEW STANDARDS ARE PRODUCED BY THE PERMANENT STAFFS OF STANDARDS-MAKING BODIES: they are produced by experts from industry and the universities, together with various specialists, such as consumer interest bodies, in appropriate cases. For example, British standards are prepared by people such as you and me, *and not by BSI staff!*

3. DIFFERENT TYPES OF STANDARD

British Standards are themselves the subject of a British Standard, BS0, which has three Parts, and covers all aspects of standards work. In Part 3, standards are divided into five defined types:

• Specifications, laying down requirements for performance, safety, interchangeability etc. A specification may also apply to a procedure.

• Methods, of measurement or test, and also *methods of specifying,* i.e. what should be in a specification and how it should be presented so as to be unambiguous and not misleading.

• Recommendations, including Codes of Practice (which are properly Codes of *best* Practice)

• Terminology, symbols etc.

• Classifications

Unfortunately, there is a sixth type, the 'guide', which is NOT well defined (in spite of all the Parts of BS0 being 'guides'!), and this is causing some difficulty which I hope will be resolved soon. It is important to understand which type each standard belongs to, otherwise you might treat a specification as only a recommendation, for example.

Standards produced by other bodies are not so clearly divided into types, and some include texts of different types in one document, which can be very confusing.

4. BRITISH STANDARDS

Many British standards are adopted international and/or European standards. It is generally held that *specifications* should be agreed internationally, since this prevents the rise of technical barriers to trade. However, *codes of practice*, for example, may well be best originated nationally, since industry practices, legal constraints and pure traditions vary so much from country to country.

The basic standards for sound systems are BS6840, a multi-part standard concerned with methods of measuring and specifying the performance of sound system equipment, and BS6259, a Code of Practice for sound systems, which is currently under revision. In accordance with the principles stated above, the 17 individual parts of BS6840 are identical with the corresponding parts of the international standard IEC268 (except that IEC268-7 has not yet been implemented as a BS because it is under revision), but BS6259 is a purely national standard.

There are a number of other British standards concerned with more specialised subjects:

- BS415 Safety of mains-operated electronic equipment
- BS7594 Code of Practice for audio-frequency induction loop systems (AFILS)
- BS7443 Specification for sound systems for emergency purposes, identical to IEC849
- BS7154 Specification for [sound systems for] conference systems, identical to IEC914

In addition to these standards, there are about 100 further standards, ranging in subject from dimensions of conduit fittings to EMC emission and immunity limits, which are from time to time the concern of people in the industry. Such a list is included in the Sound and Communication Industries Federation Directory, and it is intended to update this list every year as old standards are revised or superseded and new ones are introduced.

While sound system firms should hold copies of relevant British Standards, and they should be available for people to consult, not locked in the Technical Director's desk,

most main Public Libraries now have complete sets of British Standards on microfiche, so that you can examine a standard at zero cost before you decide whether to buy it.

5. OTHER STANDARDS

In the majority of circumstances, it is not necessary for the sound systems engineer, working in Britain, to be concerned with other than British Standards, unless he or she intends to participate in standards work. However, it is to be hoped that British engineers will increasingly have opportunities to work in other countries, where they may well be asked to conform to local standards. In this case, the first step is to enquire whether the local standard is identical, or related, to a European or international standard, because if it is, there is probably an equivalent British Standard, and it may well be one that is quite familiar. Information on equivalences of British, European and international standards (but not national standards of other countries) is available in the *BSI Catalogue*, available for consultation as a reference book in most Public Libraries. Another possibility is that a standard has been *harmonised* in Europe. This means that 18 European countries have agreed to the same standard, even though it may have different titles in the various countries.

6. STANDARDS CONSULTANTS

While a basic familiarity with some standards is essential for all, keeping fully up to date is a considerable task, especially where the work is being done on a Europe-wide basis or truly internationally. The understanding of the procedures for starting work on a new standard or revising or amending an existing one, also requires specialised knowledge. This is where the professional standards consultant can be of invaluable help, especially as many questions can be answered more or less immediately and do not warrant a fee!

7. PARTICIPATION IN STANDARDS WORK

While not everyone will want to join a BSI committee (although one hopes *someone* will want to!), there are other ways of participating. Industry representatives at BSI are normally sponsored by a Trade Association, such as SCIF, or a learned society, such as the IOA. SCIF has set up several standards panels on particular subjects, each of which sends one or more SCIF representatives to the relevant BSI committee. IOA has just one Panel at present, on speech intelligibility, which is still in its infancy but has shown

considerable promise, and has already produced two documents for consideration at international level.

Not everyone wants to be a committee member, of course, but there are still other ways of contributing. If you have a problem of any sort with an existing standard (except affording to buy it!), DON'T keep quiet. Flag it up to your trade association or society, so that it can be taken up in the BSI committee. Also, all proposed new standards are issued, at an appropriate stage in their preparation, by BSI as 'Drafts for Public Comment', and are announced in *BSI News* (also available in Public Libraries). These are exactly what they say, they are drafts specifically issued so that anyone who wants to can comment on them.

There is one golden rule about commenting: *be specific and say what you want!* This is because the BSI Committee cannot read your mind: if you only say: 'I don't think some of the statements on page 3 are correct', no-one can tell which ones you mean or what you think is wrong with them! Even less use is: 'I will never agree to what it says on page 4 about loudspeakers, and the committee clearly doesn't know anything about them!'. You may be perfectly right about the first point, so notch up one 'NO' vote, but the second statement is unlikely to be true and unlikely to convince the Committee that you are commenting with the brain rather than the spleen (an organ not known for its perspicacity). The best sort of comment, indeed virtually the only useful sort, is:

'Clause 3: In line 4, change 'switched to position 2' to 'switched to position 1'.

Reason: The measurement has to be made with the load resistance connected to the amplifier, not on no-load.'

This is quite clear to the Committee, gives a reason, and *says what you want to be put in the text!*