ISCE

The Institute of Sound and Communications Engineers

Engineering Note 26.1

Sound System Test, Alignment, and Certification – Part 3

Quality and certification

S P Jones *FInstSCE*

ISCE Engineering Note No. 26.1

Quality

After all the test signals, the time comes to listen. The ears are a sensitive measurement tool which will be the final arbiter. No meter can tell whether the human race will like what they hear. This is the time to listen firstly to messages and then to music. Preferably listen at relatively low sound pressure levels when checking the whole site, but lastly definitely at full power in selected areas, if not the whole site.

Provided that care has been taken not to upset the neighbours and the rest of the trades on site, this final test should come as a pleasant surprise to everyone, both on and off site.

Certification

Sound systems used for emergency purposes (be that fire, civil order, bomb alert etc) usually require certification that they meet certain standards, and that measurements have been taken to prove that this is the case.

No system should be measured until it has been properly and fully aligned as given above. There is no point. If a system is required to be intelligible and the delays have not been set properly, it will not be intelligible.

Care should be taken to ensure that where a system is used as the voice alarm part of a fire detection and alarm system, any commissioning of the fire system which triggers the voice alarm is not carried out until the sound system has been fully aligned. Even so, when the voice alarm is finally connected to the fire system, the latter will, of its very essence, cause sounds to be made at maximum sound pressure level and this will surely upset neighbours and fellow workers if it is allowed to continue unabated. Unfortunately not all people are quite so considerate as sound contractors, so it may be necessary to only allow the fire contractors a connected state for restricted periods until they have certified that their systems are fully de-bugged.

Since most of the validation/certification is that the system produces sound pressure levels which meet the design parameters, or that there is a certain consequence for a certain cause, these parts of the validation /certification will have already been carried out as part of the test and alignment procedures above. The one set of measurements which will not have been done is intelligibility.

Intelligibility measurements are quite a lengthy and rigorous exercise which requires knowledge and experience and are not suited to being described in this document. However, suffice it to say that, like maximum level alignments, they have to be done zone by zone at full power. It is therefore of great importance that due consideration is given to the neighbours and fellow workers.

The standards to which one is certifying usually have a template for the certificate, but if not, or if it is inappropriate, the contractor should produce their own template. This should contain the relevant clause numbers and headings against which the measurements or ratification of cause and consequence can be entered. There may need to be many sheets of the data section of the certificate in order to fit in all of the measurements when dealing with a project having several zones. It is advisable that this is not merely a bureaucratic exercise, but forms part of the maintenance manual whereby the system can be re-tested on an annual basis. Another use would occur when the system is re-aligned following modification or expansion, and that in turn would lead to re-certification.