Intellivox DDS (Digital Directivity Synthesis)

What if you could stand in a room, imagine your desired system performance and make it possible at the touch of a button……

The electronic aiming available with DDC products, which can be thought of as aiming and focusing a light, allows users to aim the sound onto the audience area; from the acoustic centre of the array.

This solution works well when you have flat audience planes. However, what happens if you have an auditorium with raked seating areas?

Digital Directivity Synthesis (DDS) offers the solution!

DDS gives users the power to synthesize any desired 3D radiation pattern from a loudspeaker array (within the physical constraints of a pre-defined array e.g. transducer distance, array length etc.) to meet the specific needs of the venue.

DDS is based on a unique, specially adapted “constrained weighted least-squares” optimisation algorithm.

Starting from a desired direct SPL distribution in a hall or more complicated room geometry, the optimum output filter for each array channel is calculated. In other words, the desired “acoustic illumination” of the hall or space is “mapped back” to the array, instead of mapping the array response to the hall.
Intellivox DDS (Digital Directivity Synthesis)

DDS facilitates the best possible coverage with the maximum direct to reverberant ratio for any given situation. DDS not only enables the user to define what area to cover but also to define areas that should be avoided, resulting in the best possible suppression of unwanted reflections. This is invaluable in controlling attributes such as stage-feedback or suppressing rear wall reflections. The powerful DDS technology provides the user unrestricted electro-acoustical system control.

Using DDA (Digital Directivity Analysis) software the user can define the array position and the audience area and allow the DDS algorithm to produce the best possible fit. The result is a complex dispersion pattern that “fits” the audience area. **DDC technology** makes it possible to achieve even SPL coverage and high direct to reverberant ratio in an environment where you have a flat audience area. **DDS technology** makes it possible to produce the same outstanding results in the most complex of spaces.

Benefits of the DDS concept include:
- Flexible array set-up
- Pre-defined direct SPL distribution over (complex-shaped) audience planes while minimum energy projection at hall boundaries
- Constant spectral balance for all listening positions
- Optimum direct-to-reverberant energy ratio
- Both far field and near field control

The Intellivox DSX range

Boasting the addition of 1” horn loaded dome tweeters and an extended frequency range of 130 - 18k Hz, The Intellivox DSX range has been introduced for applications that require improved music clarity as well as speech intelligibility.
# Intellivox DDS examples

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Examples showing how the same physical array configuration can be adapted to different situations using DDS.