

UNL broadcast partners wishing to introduce any new audio or microphone technology must submit an approval request to UEFA well in advance. Broadcast partners will need to provide technical specifications, pictures and audio from such systems to UEFA for approval.

## MIXING FACILITIES (5.1)

- mixing desks with 30 or more physical faders are recommended
- 5.1 sources should have dedicated 5.1 channels with ganged gain, equalisation, high and low pass filters, balance, width and positioning controls
- the final 5.1 mix output of the match will consist of the ball kick sounds obtained from an active mix of the pitch microphones, via a dedicated stereo group, and the 5.1 crowd ambience blended from a 5.1 group
- ball kicks should be compressed before being mixed with the ambience, at a ratio of 3:1 above a threshold of -18dBFS with quite a slow attack time of, for example, 30mS and a recovery time of 200mS
- the ambience may be enhanced by additional side-fill or spatial microphones (usually omnidirectional) which may add audio dimensions to a phase-coherent 5.1 crowd ambience microphone. This ambience may be separately compressed before being mixed with the ball kick sound.
- the 5.1 mix, when folded down into stereo or mono, should be free from any phase artefacts such as tunnelling
- a local stereo down-mix of the 5.1 mix must be provided to be fed to the first AES stream (Group 1, Pair 1) associated with HD vision
- overall, the final stereo down-mix may not exceed -9dBFS in level. A stereo limiter may be put in place to achieve this
- the 5.1 mix will be transported by a Dolby® E stream on the second AES channel (Group 2, Pair 1) associated with HD vision
- the associated HD vision should be delayed by one frame to accommodate the Dolby® E encoding.
- a local SD down-conversion of the HD vision should be accompanied by the down-mix but delayed to remain appropriately in sync

## DOLBY® E (5.1)

The Dolby® E encoder should be set to 5.1 + 2, with the following channel allocations.

1	Left front
2	Right front
3	Centre
4	LFE
5	Left surround
6	Right surround
7	HB commentary (guide)
8	MVB commentary (guide)

## METADATA