Documentation of the
5th order Ambisonics Reaper Template

for submission to Europe's 2nd Student 3D Audio Production Competition

The Reaper session 'ReaperTemplate_S3DAPC_TMT2018.RPP' represents a good starting point for producing Ambisonic content. It uses the free IEM Plug-in Suite (https://plugins.iem.at) and the free ambiX plug-in suite (http://www.matthiaskronlachner.com/?p=2015). You can, of course, use any plug-in you want. You can get the DAW Reaper here: https://www.reaper.fm/.

The project consists of three main buses (Binaural, Loudspeakers and the Ambisonic Bus) and four exemplarily mono sources, which are already encoded into 5th order Ambisonics and panned to their corresponding directions (front, left, right, top). There are also two additional tracks (5.1 Encoder, 9.1 Encoder) which are equipped with the IEM MultiEncoder plug-in, configured to encode a 5.1 and 9.1 signal, respectively. Please note, that this is just one possibility to embed different formats into Ambisonics, and the subwoofer channel is not considered here.

The main bus is the Ambisonic Bus, which receives all of the Ambisonic signals from the other tracks and can be seen as an Ambisonic master bus. This bus represents the final stage of your composition before decoding it to loudspeakers or headphones. That's why you need to export its content and use the resulting multichannel file for for your submission. You can do so by selecting the Ambisonic Bus, going to *File->Render...* and select "*Stems (selected tracks)*" in the '*Source*' dropdown list.

Remember that for 5th order Ambisonics, each track has to be 36 channels wide, and should be routed to the Ambisonic Bus (see existing routing). We have already inserted some plug-ins into the Ambisonic Bus, which could be useful (spatial metering, channel metering and dynamics), but please feel free to use any 3D audio plug-ins of your choice.

The Binaural bus is already equipped with the BinauralDecoder plug-in, which creates a binaural rendering of the Ambisonic scene for playback via headphones. The preceding rotator-plugin can be used to utilize head-tracking. If you have a loudspeaker array capable of reproducing 3D audio, you can use the Loudspeakers bus to decode the Ambisonic signals to loudspeaker signals. If you need help creating a suitable decoder for your setup, please send an e-mail to s3dapc@iem.at.

For more information about Europe's Second Student 3D Audio Production Competition please visit https://iaem.at/ambisonics/s3dapc/

Best of luck!