

Linear Acoustic Technical Note

EAS and local emergency audio management in AERO.100/1000/2000

Software version 3.16.02 and later

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This Technical Note describes the requirements and configuration of the AERO.100/1000/2000 to provide both EAS AND local emergency audio insertion in an AERO.100/1000/2000unit. This revised note includes the use of scripting features found in software versions 3.16.02 and later.

Background

AERO software version 3.16.02 and later has new features that make it easy for users to insert both EAS and local emergency audio into their main and SAP channels.

The rules for TV broadcasters concerning local emergency information came into effect in 2015. When crawls or text containing emergency information are presented on the main broadcast channel the audio equivalent of these messages must be carried on the station's SAP channel. (The exception here is when this information is part of the audio program of a news broadcast). Whether this audio is created using a text to speech engine, or by some other means, the broadcaster needs a way to insert this audio information in place of SAP audio programming. In addition, an alert tone must be broadcast on both the main and SAP channels to let the audience know that local emergency audio information will be broadcast on the SAP channel.

Solution

An update for the Linear Acoustic AERO.100/1000/2000 loudness controllers provides several new options for inserting EAS audio and local emergency audio into the program audio channels. These features will allow users to meet the new requirements using their AERO.10, AERO.100 and AERO.2000 processors when they are update to software version 3.16.02, or later. The features are command scripts, Tasks and SAP audio handling on DRC 2. Users should contact their factory representative, or Linear Acoustic dealer, for more information about these free updates.

The new software includes SAP handling features on the Pgm 2 DRC (Input 7/8) that are similar to the features that have always been available on the Local DRC (9/10) input. These include:

- The ability to choose the left or right channel of the SAP as the source for dual mono
- Automatically replace SAP audio with a downmix of the main channel if SAP is not present.

EAS tests and activations and local emergency audio alert tones should be played on the main and SAP channels. In the AERO this can now be accomplished by using the script feature to change source routing via GPI.

Example: Handling EAS and Local Emergency Audio in the AERO Loudness Manager

- a. AES audio can be connected to any of the AERO Loudness Manager's available AES digital audio inputs.
- b. Local emergency audio can be connected to any of the AERO Loudness Manager's available AES digital audio inputs.
- c. If local emergency audio alert tones are provided as a unique AES digital audio source then the tones can also be connected to any of the AERO Loudness Manager's available AES digital audio input.

Please read this Technical Note carefully to evaluate the suitability of the solutions to your specific needs. You are welcome to call your Linear Acoustic representative or dealer if you have questions or would like assistance configuring your AERO loudness control to meet your particular needs.

This example makes the following assumptions:

1. The broadcaster intends to put EAS audio and local emergency alert tones on both the main and SAP audio programs
2. SAP and DVS programs are delivered on SDI embedded audio pair 7/8
3. Local emergency audio alert tones will be broadcast on Main and SAP programs
4. Local emergency audio content will go only to the SAP channel.
5. The main program configuration has surround program sources on inputs 1/2, 3/4, and 5/6 of Instance 1 and stereo only main program audio appears on pair 1/2.
6. EAS audio is connected to AES Input 1/2
7. Local Emergency Audio is connected to AES Input 3/4.

The example configuration:

GPI 1 is used to send EAS audio output to both Main and SAP programs

GPI 2 is used to send Local Emergency Audio alert tones to Main and SAP programs

GPI 3 is used to send Local Emergency Audio to SAP program only

The routing of sources to Instance 1 inputs is shown in Figure 1 below.



Figure 1

DRC Program 1 is the loudness control for the main channel

DRC Program 2 is the loudness control for the SAP/DVS channel.

The Local mode of processor input 9/10 will be used to insert EAS and local emergency audio in the Main and SAP channels.

The 9/10 Input Mode:Local means the 9/10 input will override Pgm 1 or Pgm 2 according to the Destination setting.

Local Audio Override: Off sets normal operation as no override.

Destination: Program1 and Program 2 sets the Main and SAP programs to be replaced by the Proc 9/10 Input = AES 1/2 setting of the input routing.

Source: stereo takes both channels of the assigned AES source as the EAS audio source.

Vox: Off prevents audio on the Proc 9/10 input from automatically replacing the Program 1 and Program 2 audio.

Crossfade Speed: Instant will cause the EAS audio immediately replace Programs 1 and 2 when the EAS or Local Emergency audio GPIs are closed.

Duck:Mute completely replaces Program 1 and 2 audio with the EAS or Local Emergency audio

Disabling Upmixing ensures that the EAS audio will appear only in the Lf and Rf audio channels

The configuration for DRC Local (DRC 3) mode is shown below in Figure 2.



Figure 2

In the Output 9/10 configuration Tab **Downmix -> 9/10** is set to On. This provides a full time downmix of the main program output for station monitoring or any other use. This downmix can be output from any of the available AES digital audio outputs. This setting is found on the Output Routing Tab. The Local DRC remains ready to override Pgm 1 + Pgm 2 with EAS or local emergency audio while the 9/10 output has a full time downmix audio.

The downmix parameters can be set to the user's preference. The Downmix Gain can be set to trim the downmix output level as desired.

The configuration for Output 9/10 is shown in Figure 3, below.



Figure 3

EAS audio can be inserted into both the Main and SAP program outputs simply by closing a GPI that is assigned to enable and disable DRC Local Override. The configuration for this is shown in Figure 4, below.

Note that the screen indicates that GPI is not enabled. GPI must be disabled in-order to change GPI configuration for any GPI. This prevents currently enabled GPIs from being accidentally modified and affecting the current audio program. The GPI enable control is found on the GPI tab:

System > GPI > GPI



Figure 4

Creating Scripts and Tasks

The next step is to create scripts that control the audio source for the Local Emergency Audio and the programs that Local Override controls. When the Local Emergency alert tones or message is done setting the GPI back to the high state makes the AERO ready for EAS insertion audio again.

There is an Application Note entitled Commands Scripts and Schedules on the Linear Acoustic website. This Application Notes has detailed instructions for how to access the scripting features and build scripts. If you are not familiar with AERO Loudness Manager scripts then please download this Application Note. The Application Notes are found on the AERO.10, AERO.100, AERO.2000 product pages. The process is identical for AERO.10, AERO.100, AERO.1000, and AERO.2000 units using software version 3.16.02 and later. You must be logged into the website to access the Application Notes.

Below are sample scripts for:

- local emergency audio alert tones on Main and SAP program outputs
- local emergency announcements on SAP only
- Returning EAS audio to the DRC Local input when Local Emergency override is finished.

A script must be given a name and then it can be saved. The named script then appears as a Task that can be assigned to a GPI. An example of the assignment of Tasks to GPIs in NfRemote is shown in Figure 5, below.



Figure 5

When Task is selected in the Function drop down all of the available Tasks are shown in the LO: and HI: drop downs. An example is shown in Figure 6, below.



Figure 6

The scripts for 4 Tasks shown are shown below.

Task (script) name: **Local Emergency Alert Tones On**

parameter/inst_1/input/in_9_10=2

parameter/inst_1/out/local_destination=-1

parameter/inst_1/out/local_state=2

1. The first parameter changes the source of Proc in 9/10 from AES 1/2 (EAS) to AES 3/4 (Local Emergency Audio).
2. The second line sets the Override for both Main and SAP channels
3. The third line turns on Local Override.

Task (script) name: **Local Emergency Tones Off**

parameter/inst_1/out/local_state=0

parameter/inst_1/out/local_destination=-1

parameter/inst_1/input/in_9_10=1

1. The first line turns Override Off.
2. The second line sets the Override for both Main and SAP channels
3. The third line sets the source of Proc in 9/10 back to AES 1/2 (EAS)

Task (script) name: **Local Emergency Audio to SAP only**

parameter/inst_1/input/in_9_10=2

parameter/inst_1/out/local_destination=1

parameter/inst_1/out/local_state=2

1. The first line sets the source of Proc In 9/10 to AES 3/4 (Local Emergency Audio)
2. The second line sets the Override to Program 2 (SAP program) only
3. The third line turns Local Override On.

Task (script) name: **Local Emergency Audio Off**

```
parameter/inst_1/out/local_state=0
```

```
parameter/inst_1/out/local_destination=-1
```

```
parameter/inst_1/input/in_9_10=1
```

1. The first line turns Override Off.
2. The second line sets the Override back to both Main and SAP channels
3. The third line sets the source of Proc in 9/10 back to AES 1/2 (EAS)

Instead of simply using the built in Local Override command to start an EAS test/broadcast a script could be written to set the Override Mode to Program 1 and Program 2 and to set the Local Override source (Proc In 9/10 input) to AES 1/2. This would ensure the correct configuration for EAS. The script would look like this:

Task (script) name: **EAS On**

```
parameter/inst_1/input/in_9_10=1
```

```
parameter/inst_1/out/local_destination=-1
```

```
parameter/inst_1/out/local_state=2
```

This could be assigned to GPI 1 pull to ground. Lo: EAS On

GPI 1 open, or High state, state would still be set for HI:Local Override Off.

Conclusion

The new scripting and Task features provides ultimate flexibility in controlling the routing and functions of the AERO processors. Any combination of EAS and local emergency audio sources and destinations can be handled with scripts. Unlike previous software versions EAS and local emergency audio can be handled in a single Instance with both a main and SAP/DVS audio programs.