Sweat Calibration Plan Purdue Theatre Fall 2021

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Call time: September 9th, 2021 6:30PM – 10:30PM

6:30

- Review calibration plan, calibration plot, and expectations

6:40

Check system

- Speakers
- Amplifiers
- Channels
- DSP
- Measurement Mics

6:50

Onstage speaker calibration

- All loudspeaker levels will be at 75dB SPL C-Weighted slow
- Center Sub will be set to 80dB SPL C-Weighted Slow
- All pink noise will be run from Smaart at -18dBFS

1. Juke Box calibration
    a. Place measurement mic at ONAX Juke
    b. Run pink noise through Juke
    c. Take a transfer function in Smaart of the graphs of pink noises from Smaart and the Juke
    d. Examine the response curves for the trends (coherence), and if necessary, apply corrections in Qsys DSP
    e. Repeat steps 1a-1e for TV

7:30

Front Fill signal alignment

- Front Fills will be delayed to the jukebox and tv
- Find system signal delay through Smaart and account for it before each delay measurement

1. Position the wireless measurement mic at ONAX FF L
2. Send Pink noise through Jukebox
3. Using FFT window in Smaart to observe changes, add delay in Qsys to FF L to align the peaks of each wave until they match
4. Once the waves match, add 5msec more delay to allow precedence to develop
5. Turn off pink noise through FF L and Jukebox
6. Copy and paste the delay time to all FF
7. Use tuning clicks to double check that all the fills have been delayed properly

8:00

Proscenium Loudspeaker Alignment

1. Position the wireless measurement mic at ONAX ProL
2. Send Pink noise through Jukebox
3. Using FFT window in Smaart to observe changes, add delay in Qsys to ProL to align the peaks of each wave until they match
4. Once the waves match, add 5msec more delay to allow precedence to develop
5. Turn off pink noise through ProL and Jukebox
6. Copy and paste the delay time to ProC and ProR
7. Use tuning clicks to double check that all the proscenium speakers have been delayed properly

8:30

Proscenium Center Subwoofer Alignment

- Place measurement mic at ProC ONAX
- Send pink noise through ProS
- Set level to 80dBSPL C-Weighted Slow
- Set the delay for the ProS to the same as ProC
- Run pink noise through ProC and ProS and check phase and crossover frequency(80hz). Adjust delay to align phase

8:45

Surround System levels and alignment

1. Level Set
    a. Rough focus each surround so that the -6dB point at the bottom is just beyond the closest seat (still receives full coverage)
    b. Run pink noise through the ProC and take a measurement directly underneath ONAX Ov1L
    c. Run pink noise through Ov1L and set level of OV1L so that it matches the ProC measurement
    d. Store a trace of a single FFT measurement of the frequency response of the Ov1L
    e. Repeat steps a-d for the remaining overheads
    f. With pink noise running through Ov1L move the mic towards Su1L, and find the point where the live measurement matches -6dB trace recorded in step d
    g. With the mic in the XOVER location found in step f, turn off Ov1L and run pink noise through ONAX Su1L. Match level to the -6db trace from step d
    h. Repeat steps f-g for each perimeter surround speaker, matching them to the nearest overhead speaker
2. Alignment
    a. Place measurement mic at ONAX Su1L and run pink noise through Juke
    b. Run pink noise through Su1L and using the FFT window in Smaart to observe changes, ad delay in Qsys to Su1L until signals from Juke and Su1L are aligned
    c. Add 5msec of delay to the Su1L
    d. Copy and paste the delay time to mirroring surround speakers on house right
    e. Repeat steps a-d for rear speakers
    f. Walk through the house with tuning clicks

10:00

System equalization

1. Place the measurement mic at ONAX ProL and send -18dBfs through
2. Take transfer function of graphs of pink noise and ProL loudspeaker
3. Examine response curves and correct in Qsys
4. Repeat for each speaker and listen to music through tuned system

10:30

- Put all tools and mics into respective places
- Put calibration kit and measurement mics in SVC room
- Clean up Sound tech table and FOH table
- Get some sleep