Subwoofer Array Configurations – Projections and Measurements

Terry Chun

Entertainment Technology, NYCCT, Brooklyn, NY 11201

Introduction

Low frequency sound waves with high wavelength are dispersed in wide pattern. These low frequency sound waves produced by subwoofers interact and interfere in a different way than full-range drivers. Understanding these behaviors, subwoofers can be arranged in various configurations to cause wave interference in a way that can be directed intentionally.

This project aims to explore several subwoofer configurations and low frequency wave interference through software prediction then comparing the results to measurements taken from a physical space.

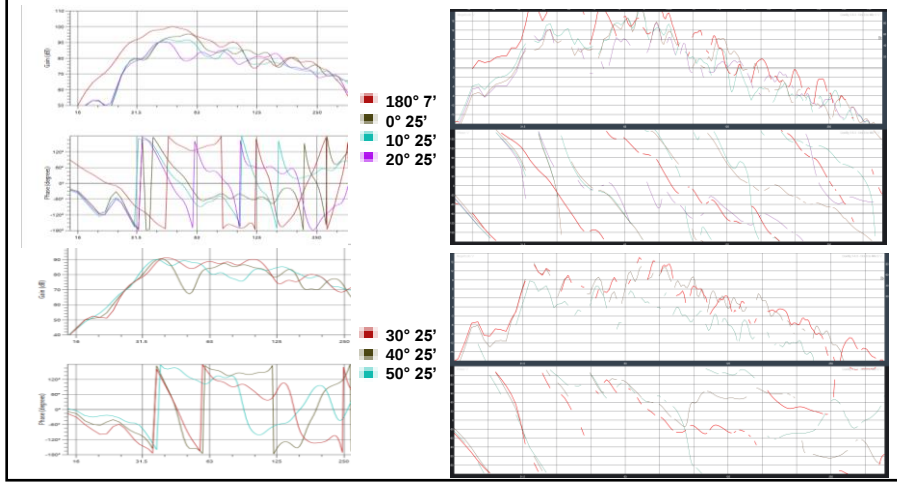
Materials and Methods

This project uses the following subwoofers to predict and build LCR, end fire, gradient, and stacked cardioid configurations:

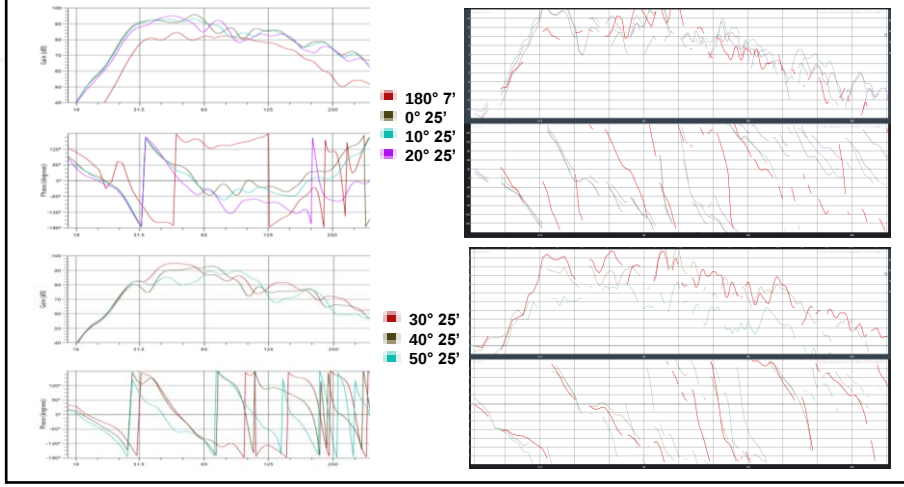
2 x Meyer UMS-1P
1 x Meyer 650-P

The Meyer subwoofers are predicted using the MAPP XT software and S.A.D.
The projections are then built at Vorhees theater and tested using SMAART software and 7 x AT-3032 microphones, to observe the wave configurations in an actual space and explore any discrepancies between actual and predicted.

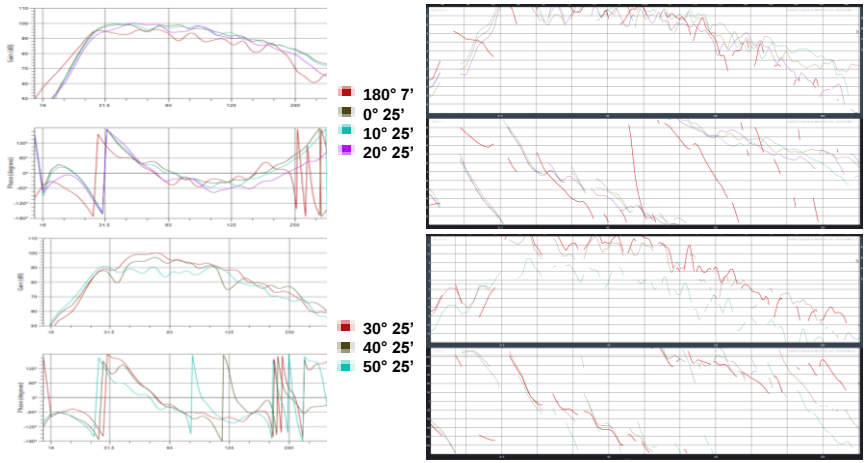
Results - LR stereo



Results - Gradient



Results - Endfire



Results – Stacked Cardioid