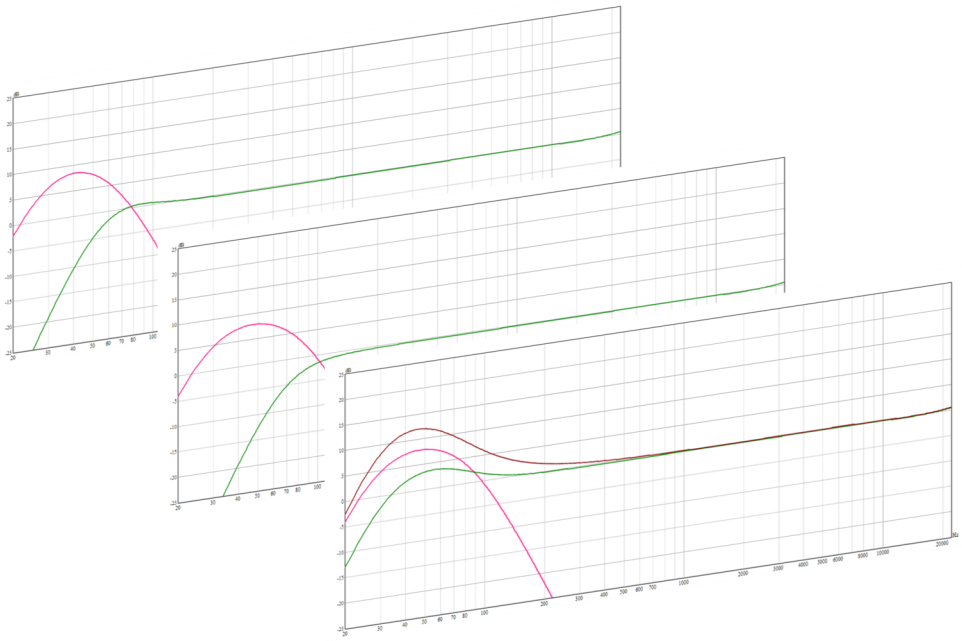
VTX V25-II Preset Guide



General Information:

VTX V25-II Preset Guide

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JBL Professional

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Introduction

The **VTX V25-II Release 1.4** preset library includes **ST, LT,** and **XLT** operating modes for V25-II along with **X, 60** and **80** sub/low processing for VTX V25-II and G28/S28 subwoofer combinations. Cardioid presets are included for all VTX subwoofer models. VTX presets are exclusively developed for Crown I-Tech HD amplifiers and come bundled with JBL HiQnet® Performance Manager™ control software. Audio Architect presets are also available on-demand and can be downloaded from the JBL website. Please see below for a detailed description of V25-II operating modes and subwoofer processing options, and refer to Preset Summary setup sheets for preset descriptions, memory locations, and output channel assignments.

V25-II Preset Modes

Three preset options are available for VTX V25-II: ST, LT and XLT

VTX V25-II ST (Single Box) presets have nominally-flat frequency response and are to be used in situations where one V25-II cabinet is appropriate, such as distributed front fills. ST preset tonal balance is intended to be used for a single V25-II **(1 x V25-II).**

VTX V25-II LT (Long Array) presets have a 6 dB low-frequency shelving characteristic and high-frequency shelving response (HF pre-emphasis) to offset LF/MF array buildup for nominally-focused arrays (equal enclosure site angle impact spacing over the desired audience coverage area). The LT presets are intended to be used for small to medium-sized arrays **(4 - 8 x V25-II)**.

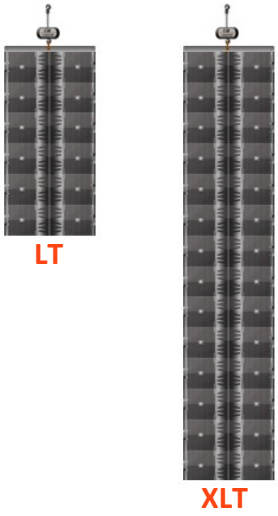
VTX V25-II XLT (Extra Long Array) presets have a 6 dB low-frequency shelving characteristic and high-frequency shelving response (HF pre-emphasis) to offset LF/MF array buildup for nominally-focused arrays. The XLT presets are intended to be used for medium to large-sized arrays **(8 and above x V25-II).**

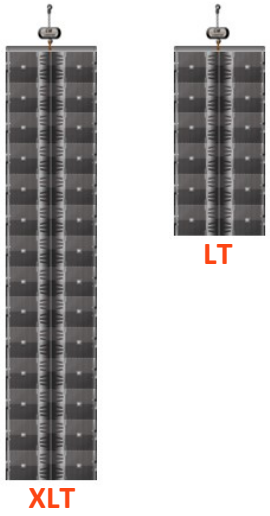
Notes:

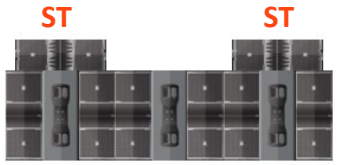
- Mixing ST, LT, and XLT presets within the same array (for example, ST presets on lower circuits, LT presets on middle circuits and XLT on upper circuits of the array) is not recommended.
- The LT and XLT presets provide a well-balanced tonal starting point for a given array size. The Array Size Compensation filter found in the JBL Line Control Panel (LACP) can be used to further fine-tune the tonal balance of an array for a given array length. Please refer to the LACP section for more information.
- For more details on working with the JBL Line Array Control Panel, please refer to the Performance Manager or JBL Line Array Calculator help files. Additional online support is available here.

Configuration Examples

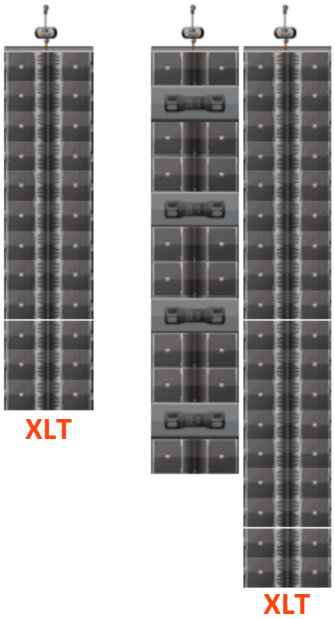
Example: Medium to Large V25-II system consisting of Left/Right arrays, V25-II outfills and V25-II front fills

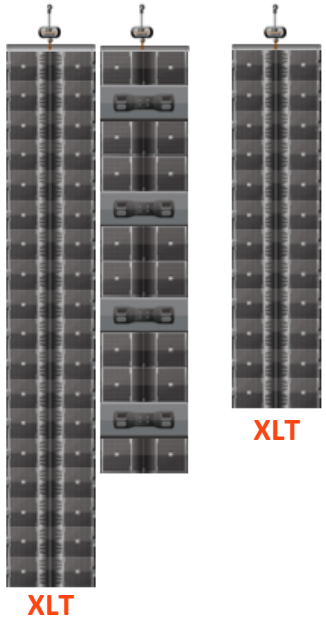


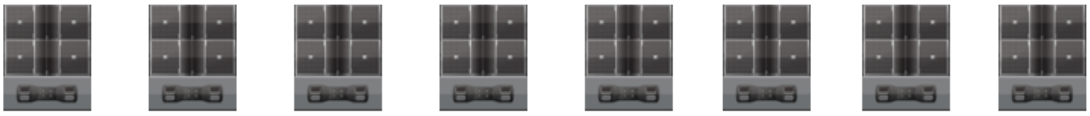




Example: Large V25-II system consisting of Left/Right arrays, flown subs and V25-II outfills

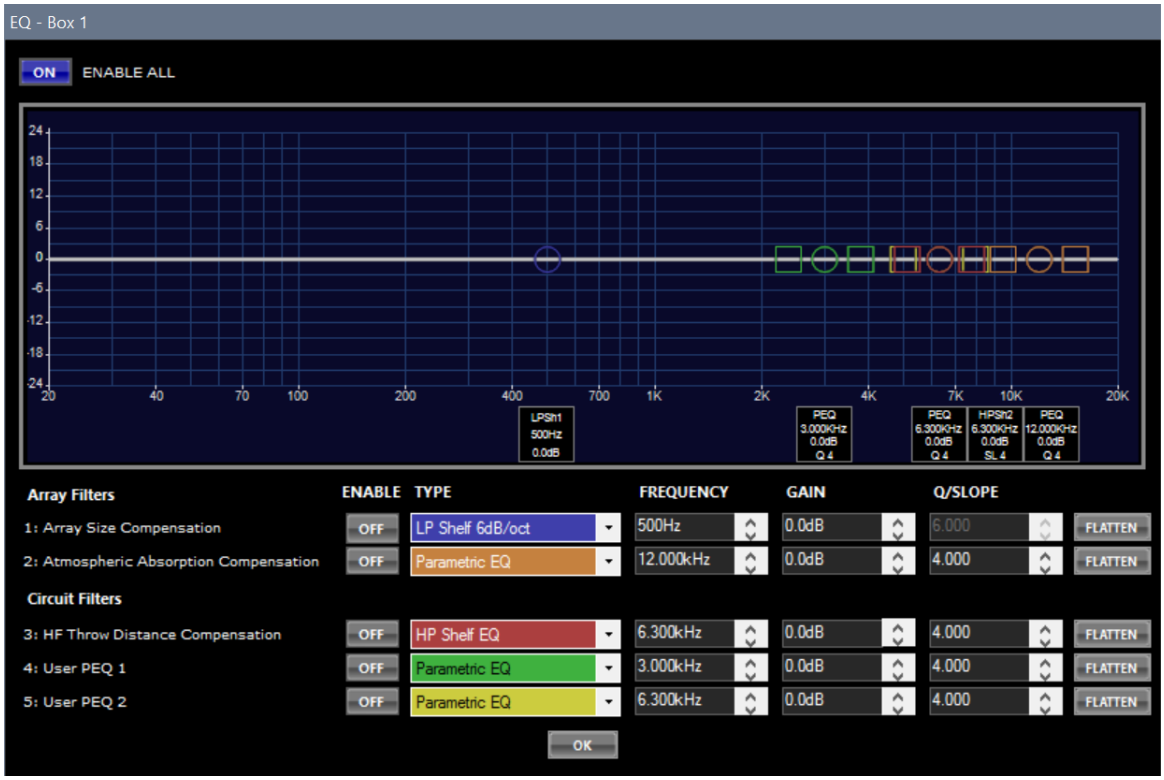






JBL Line Array Control Panel (LACP) Overview

The frequency response of a line array is determined by many factors including the array size (number of boxes), array curvature, and the listening distance. JBL factory presets (ST, LT, and XLT) were designed to create a well-balanced tonal starting point for the array conditions previously described. Since these presets cannot account for all variables in the system/venue, user adjustment of certain DSP parameters is necessary to create the desired tonal balance for a given array and application. The JBL Line Array Control Panel (LACP) was designed to help system engineers quickly and easily manipulate the tonal balance of an array. LACP parameters can be modeled in JBL Line Array Calculator 2 (LAC-II) and applied in real time using JBL Performance Manager control software.



The LACP consists of 5 adjustable DSP filters, each with a specific intended purpose. Some of these filters are grouped across the entire array (global adjustments), some filters are circuit group specific, and some filters have frequency centers and Q values that are linked but have adjustable circuit gain. Below is a description of how these 5 filters work:

1. Array Size Compensation: Filter 1 is intended for correcting LF/MF build up created by an array that is longer than the intended preset. LF adjustments should be applied to all cabinets within the array, therefore filter 1 is a global filter. See next section for an example of how to use filter 1.

2. Atmospheric Absorption Compensation: Filter 2 is intended to compensate for atmospheric conditions due to large variations in temperature and humidity that can have an impact on the overall HF energy. Filter 2 is applied globally and can be used to quickly brighten or darken an array. This filter can also be used for artistic purposes to adjust overall system tonal balance.

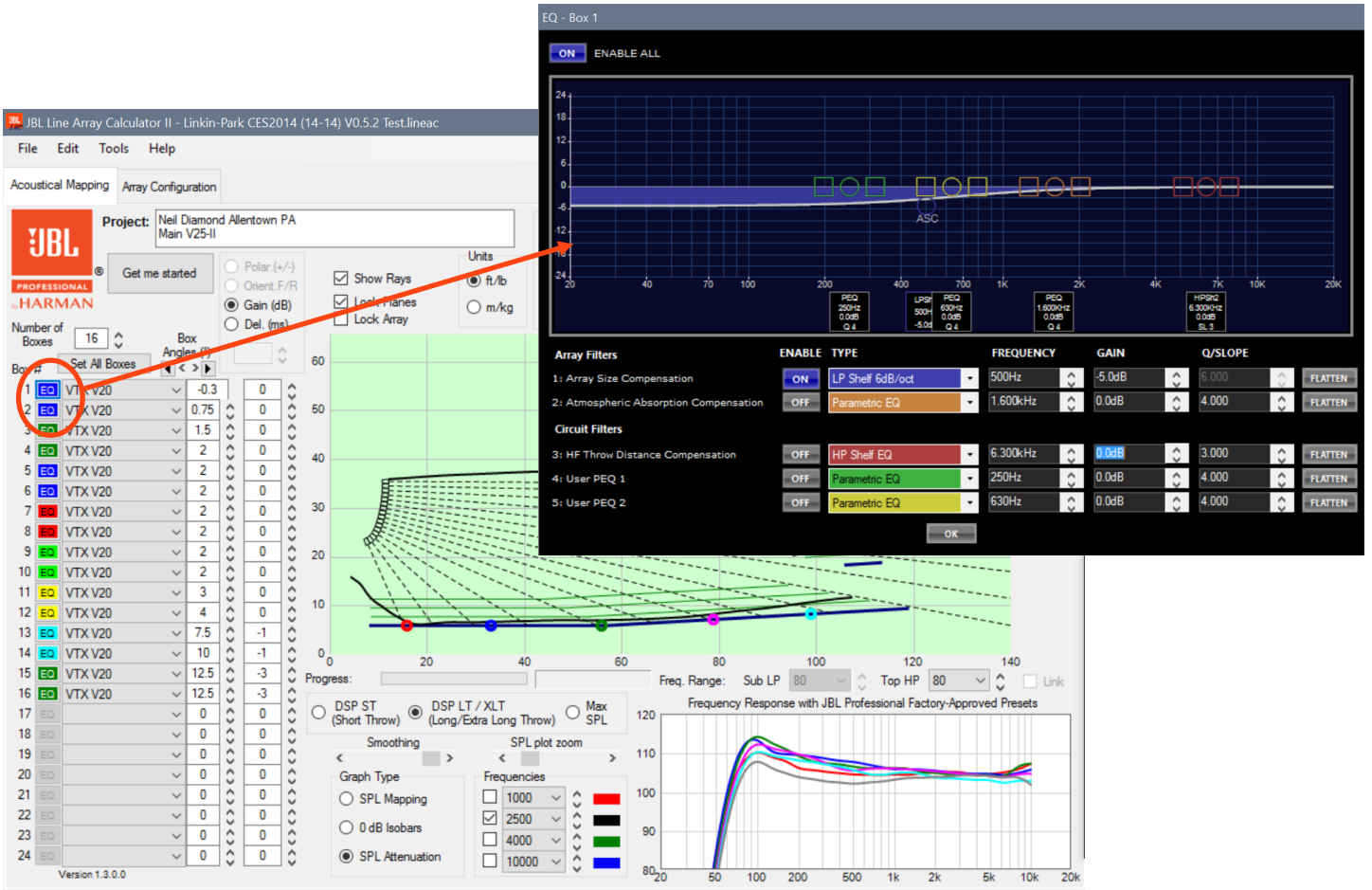
3. HF Throw Distance Compensation: Filter 3, along with Gain shading, is intended to correct for distance offsets between different sections of an array. The Type, Frequency and Q are linked across the entire array but the gain is adjustable per circuit group. This filter can be used to reduce HF energy close to an array and increase HF energy to areas further away where air absorption has a bigger impact.

4. User PEQ 1 & 2: Filters 4 and 5 are User PEQs that can be applied to individual circuit groups. Frequency centers and Q are not linked across circuits and, for this reason, it is recommended that User PEQ 1 & 2 are used for frequencies above 1kHz with moderate gain changes only.

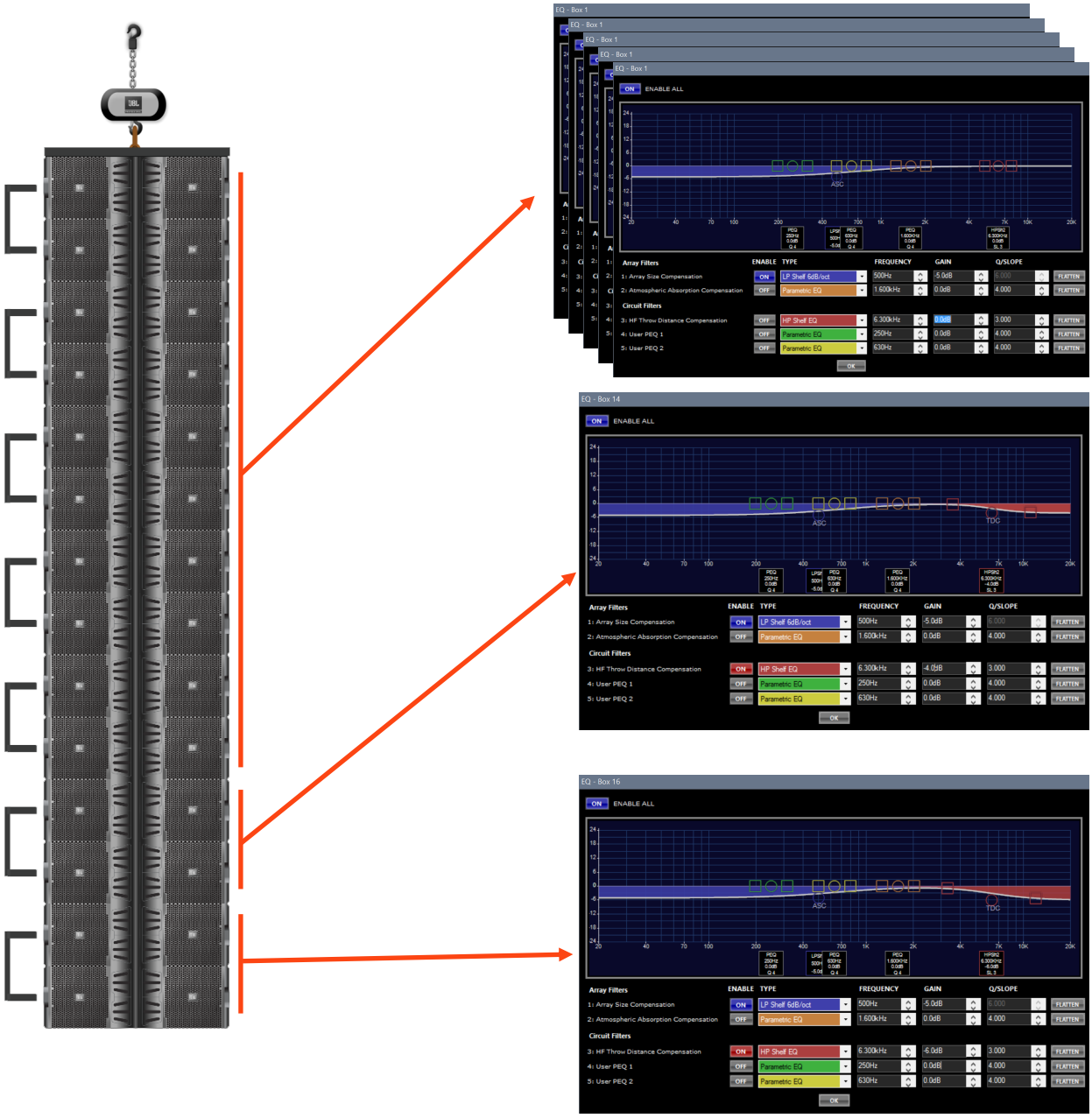
5

LAC-II Example

To access LACP within LAC-II, click on the EQ button next to the speaker selection drop-down menu. If user circuit groups were created, LACP adjustments are applied to all elements within the selected circuit group. Global filters, like Filter 1 and 5, are automatically applied to all circuit groups in the array.



This LAC-II example is for a 14 cabinet V25-II array for an indoor venue. The XLT preset is used with the Array Size Compensation filter set to 500 Hz at –4dB to offset LF buildup and achieve a flatter frequency response. As seen from the illustrations below, Array Size Compensation is globally applied to all array circuits. The bottom two circuits include gain shading and HF attenuation using the HF Throw Distance Compensation (filter 3). As seen on the previous page, the result is very even and consistent coverage throughout the entire venue.

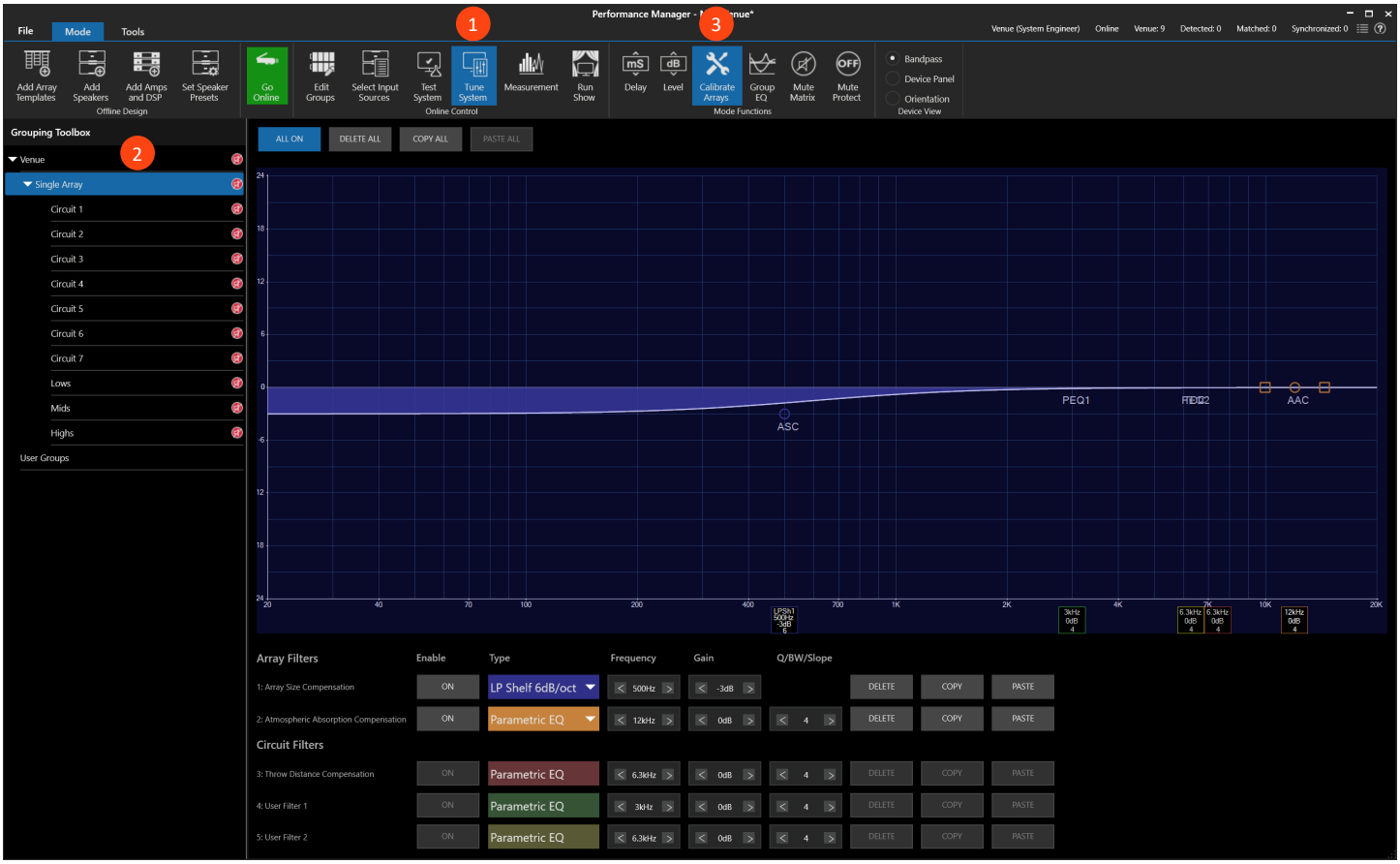


Note: LAC-II frequency response predictions are Direct Field only, which means that room acoustics (reflections, room modes and reverberation time) are not taken into consideration. Room acoustics go beyond what LAC-II was designed for, but optimization of the direct sound gives a good starting point for additional optimization to compensate for the effect of room acoustics.

Accessing LACP in Performance Manager

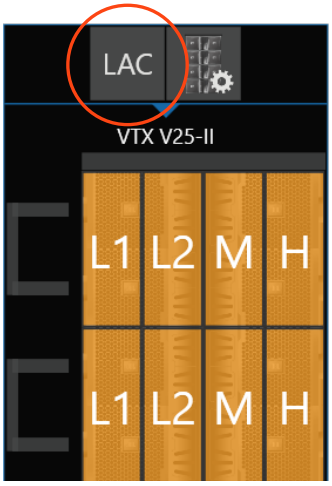
To access LACP in Performance Manager, follow these steps:

1. Enter **Tune System** mode
2. Select an **Array** or an **Array Circuit** from the **Grouping Toolbox** section
3. Click the **Calibrate Arrays** button



Selecting the main array group allows access to LACP filters 1 & 2 (Array Filters), and selecting a circuit group allows access to filters 3 - 5 (circuit filters).

How to import LAC-II files into Performance Manager

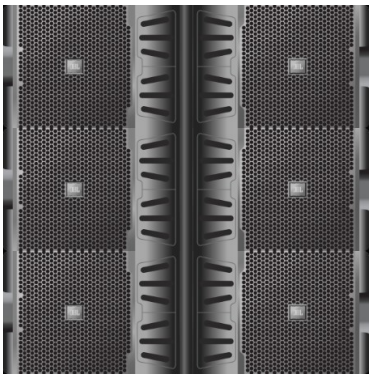


LACP parameters created in LAC-II can be loaded directly into Performance Manager (PM), eliminating the need to manually transfer DSP parameters from LAC-II to PM. To import LAC-II files into PM, navigate to the **Add Speakers** mode and then click on the LAC-II icon located under the arrays. This will open the PM version of LAC-II, allowing you to import and edit existing LAC-II venue files. All DSP parameters, including Gain Shading, LACP values and Circuit Grouping, are transferred to the corresponding amplifiers, overwriting existing PM values.

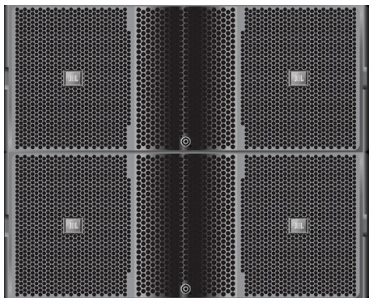
Subwoofer Operating Modes

VTX V25-II presets are designed for a 3:2 cabinet ratio (V25-II : VTX S28 or G28 subwoofers). The 3:2 ratio provides sufficient headroom for both the subwoofers and the V25-IIs to reach MAX SPL (limiters) at the same time, while maintaining a 10dB SUB to TOP contour. Other ratios can be used depending on the desired tonal balance target, MAX SPL and application.

3 x V25-II

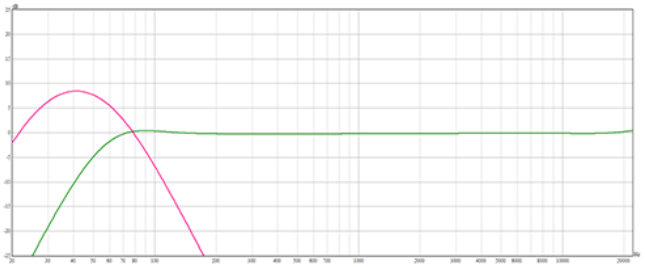


2 x S28 or G28

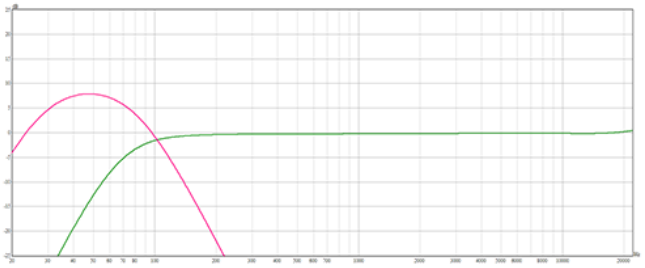


SUB/LF Preset options:

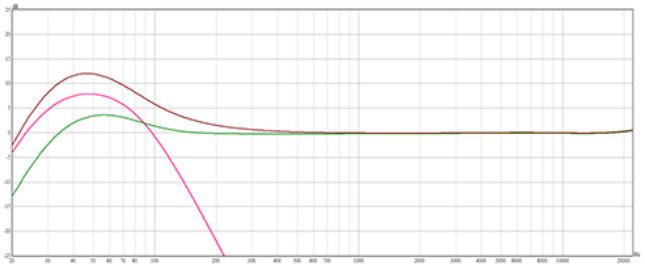
- **60** presets have a 60 Hz high pass filter for VTX V25-II and a 60 Hz low pass filter for VTX S28 or G28 subwoofers (subwoofers have positive polarity)



- **80** presets have an 80 Hz high pass filter for VTX V25-II and an 80 Hz low pass filter for VTX S28 or G28 subwoofers (subwoofers have positive polarity)

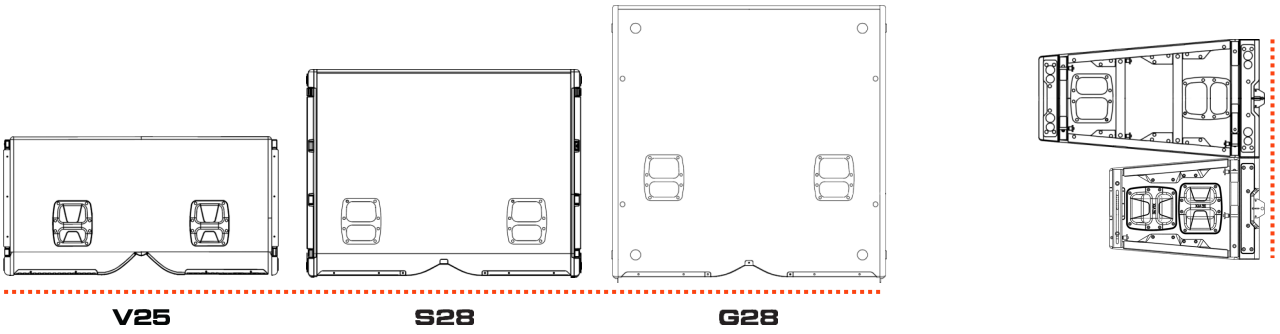


- **X** presets allow the low section for VTX V25-II to operate in full range mode (down to 33 Hz) with maximum LF extension. An 80 Hz low pass filter is employed for VTX S28 or G28 subwoofers creating an overlap between the V25-II and the subwoofers (subwoofers have negative polarity)

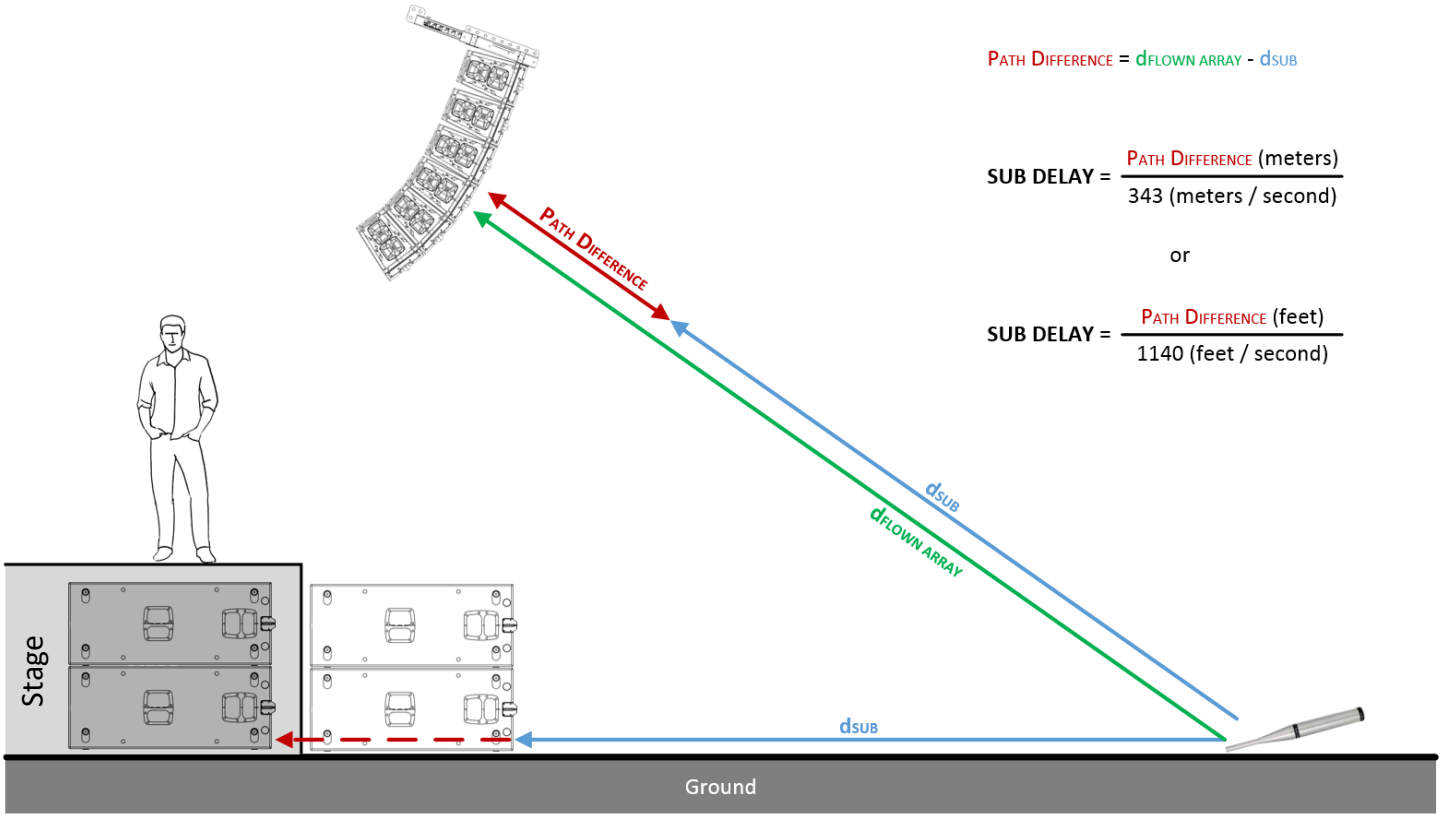


System Time Alignment

V25-II low section **X, 60, 80** presets provide proper system summation with companion subwoofers under physically-coupled configurations (stacked or suspended) when subwoofers are used with corresponding G28, S28 or VT4880A X, 60, 80 presets respectively. For optimum summation, always make sure that the low section and subwoofers are both operating in the same mode (X, 60 or 80.)



Additional time alignment delay should be added, as necessary, to account for physical path length differences between suspended V25-II versus ground-stacked G28 or S28 subwoofers. If no acoustic measurement system is available, delay values can be calculated based on the geometric path difference between a reference point (i.e. FOH position) and each system.



Cardioid Configurations

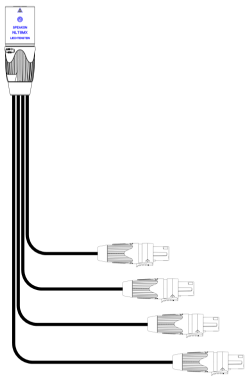
The VTX V25-II library includes G28 and S28 cardioid preset support optimized for 2 forward : 1 rear-firing cabinet configurations (multiples of 3 enclosures). The 2:1 ratio is preferred since it can achieve excellent rejection without the need to drive the rear-firing enclosures more than the front-firing enclosures.

Ground

Flown or on stage

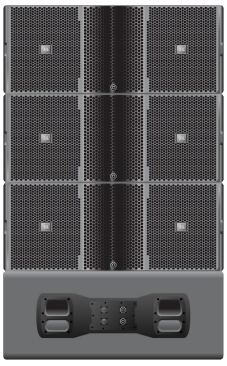
Ground or on stage

Other ratios (like 3:1) can also be deployed using the same presets but with reduced rear rejection effectiveness. Depending on the application, the drive level for the rear-facing elements can be adjusted (1–3dB) to achieve the desired rejection behind the arrays. The 3:1 ratio works best with the Crown I-Tech 4x3500HD 4-channel amplifier when used with an NL8 to NL4 breakout cable to connect one subwoofer per amplifier channel.



NL8 to NL4 breakout cable

3 : 1



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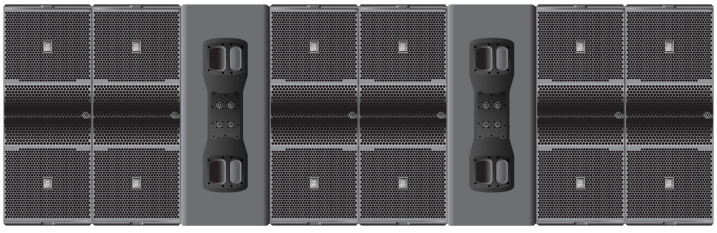
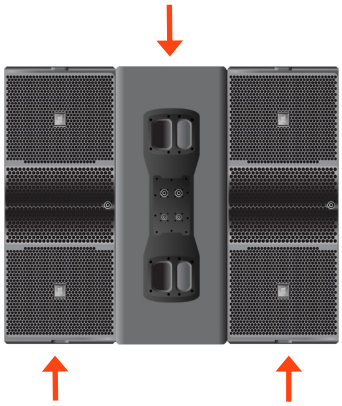


To further optimize cardioid cancellation for multiple blocks of 3 or 4 enclosures and arbitrary configurations, compare front-firing-only versus rear-firing-only frequency responses at a rear measurement location. Determine additional equalization and level adjustment to be applied to rear-firing enclosures in order to compensate for coupling conditions for the specific configuration. The rear-firing enclosures should measure very similar to the front-firing enclosures at the rear location.

To implement VTX S28 or G28 cardioid configurations using Audio Architect, select the appropriate **X, 60** or **80** preset for front and rear-firing enclosures respectively, as illustrated below:

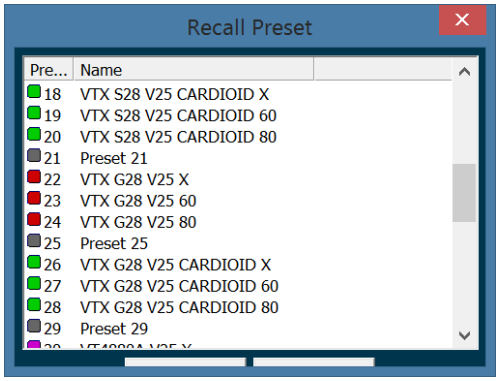
Rear-Firing Enclosure

26: VTX G28 Cardioid X (60, 80)

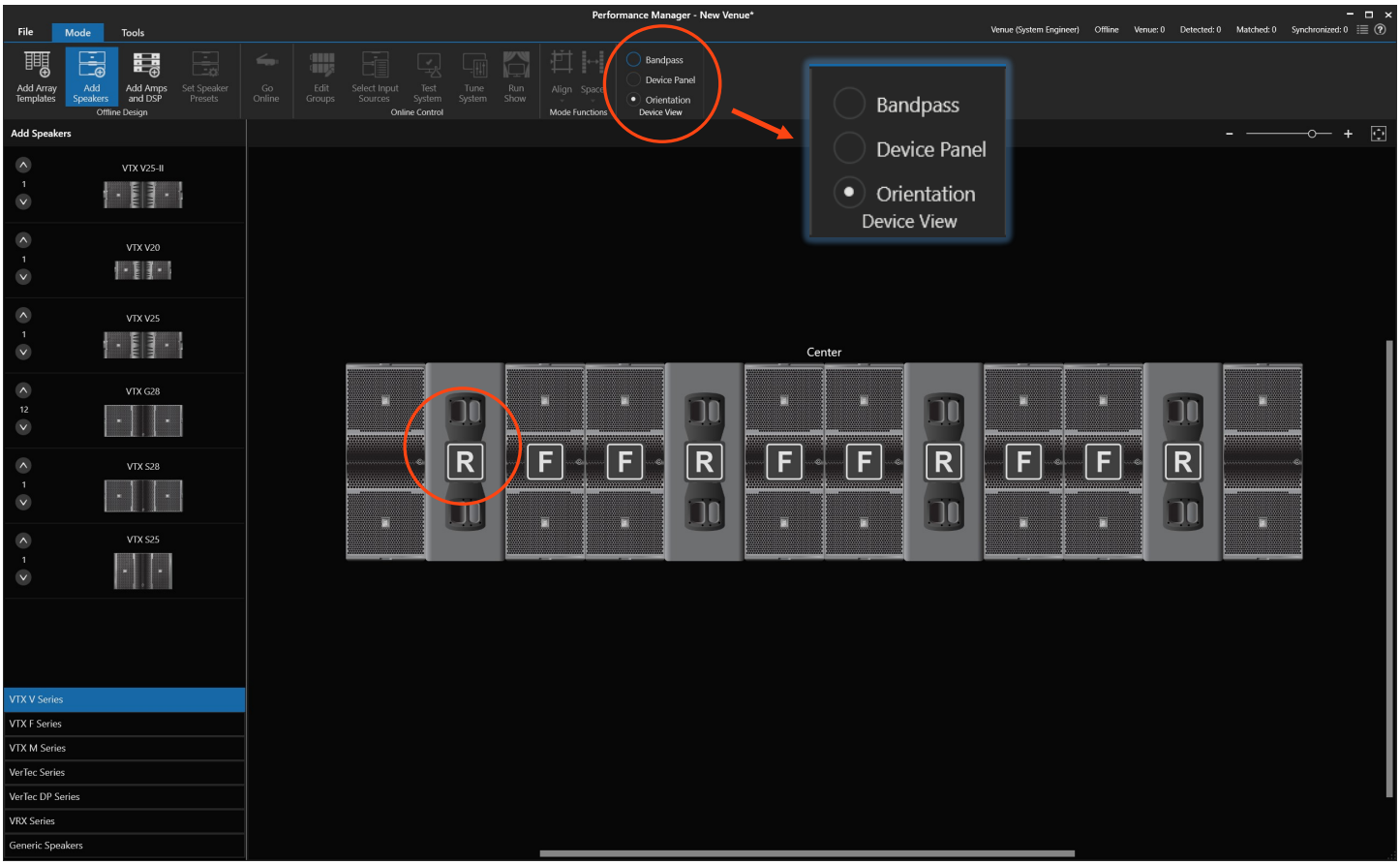


Front-Firing Enclosure

22: VTX G28 X (60, 80)

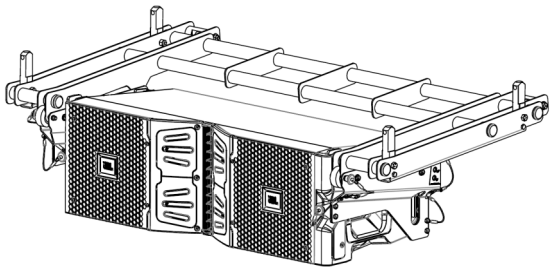


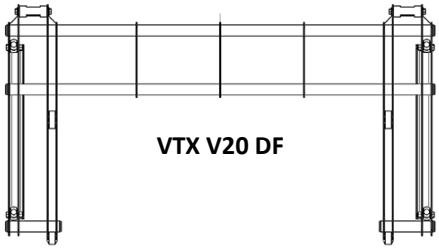
To implement cardioid presets in Performance Manager, switch the **Mode Function** from **Bandpass** to **Orientation** and then click the **R** button on rear-firing subwoofers. PM will then send the appropriate presets to the associated amplifiers.



Down Fill Preset for VTX V20

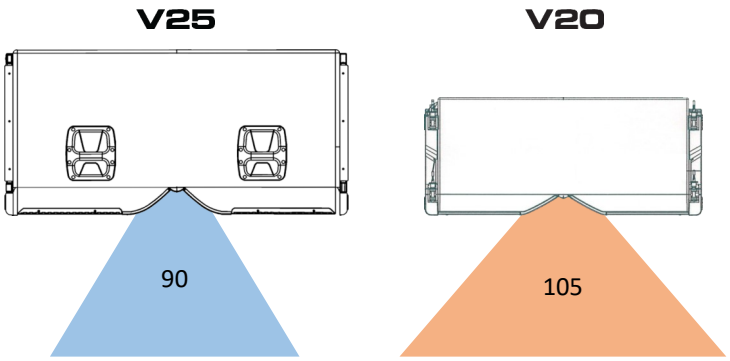
VTX V20 loudspeakers can be used within the same array as V25-II using the optional VTX V20 DF Down Fill Adapter frame.





Benefits:

- **Horizontal coverage** - The horizontal coverage of an array (or a point source speaker) becomes progressively narrower when decreasing the listening distance. The closer the distance to the array, the narrower the horizontal coverage. Depending on the venue and array geometry, the 90-degree coverage pattern of the V25-II may not be sufficient to cover the closer listening positions. VTX V20 line array elements can be used at the lower part of the array to increase the horizontal coverage of the array from 90-degrees to 105-degrees.



- **Smaller vertical footprint** - Some applications (for example, televised award shows) require large vertical coverage angles while maintaining high array trim positioning to avoid sight line issues. These types of array configurations typically require significant curvature (large box-to-box splay angles) at the bottom of the array to cover the front part of the venue. In these instances, a combination of V25-IIs and V20s can be used to achieve the required coverage angle while keeping the overall array length, box counts, and weight to a minimum.
- **Inventory flexibility** - The ability to combine V25-II and V20 to create a single array can offer greater flexibility in inventory.

Recommended V25-II to V20 Ratio

The VTX V20 DF (down fill) adapter frame and preset were developed for V20 cabinets to be used at the lower part of a V25-II array to accommodate shorter throw distances and tightly wrapped enclosures that are intended to cover the front section of the venue. The correct ratio between V25-II and V20 cabinets should be maintained for proper array performance and coupling. In general, a 3:1 ratio (3 x V25-II for every 1 x V20) is recommended for most applications. Depending on the array size and venue geometry, other ratios similar to 3:1 can be used, but a ratio of 1:1 should be avoided. Use the latest version of JBL's Line Array Calculator II software to determine the ideal array parameters.

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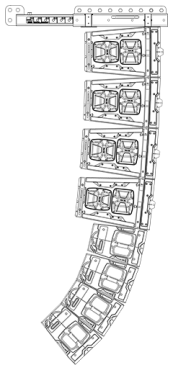
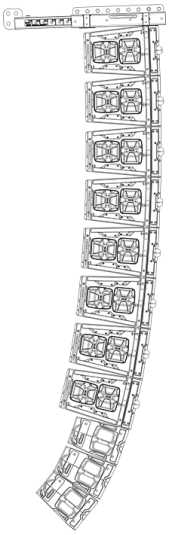


Correct



Correct

VTX V20 DF Preset Description

The VTX V20 Down Fill preset optimizes the performance characteristics of the VTX V20 when suspended underneath VTX V25-II enclosures and is required for this configuration. When V25-II and V20 enclosures are combined in the same array, standard array calibration and tuning techniques apply, as described above, and the combined array should be treated as if it consisted of V25-II enclosures only.

Notes:

- The standard VTX V20 V5 presets are not compatible with this application. Always use the VTX V20 DF preset for this application.
- VTX V20 DF presets are available for the full active mode only (quad amplified). The 2-Way Passive mode is currently not supported in this configuration.

Preset Summary Sheet for Crown I-Tech 12000HD

Device File: VTX V25-II R1.4 AA.I-Tech HD Series.Device

VTX V25-II SHORT THROW	PRESET	DESCRIPTION	CH 1	CH 2
HF / HF VTX V25-II ST	2	VTX V25-II High Section Processing; Short Throw Mode (nominal flat HF)	V25-II HF ST	V25-II HF ST
MF / MF VTX V25-II ST	3	VTX V25-II Mid Section Processing	V25-II MF ST	V25-II MF ST
MF / HF VTX V25-II ST	4	VTX V25-II Mid / High Section Short Throw Mode (nominal flat HF) Processing	V25-II MF ST	V25-II HF ST
HF / MF VTX V25-II ST	5	VTX V25-II High Short Throw Mode (nominal flat HF) / Mid Section Processing	V25-II HF ST	V25-II MF ST
LF / LF X VTX V25-II ST	6	VTX V25-II Low Section Processing: X Mode (nominal flat LF)	V25-II LF X ST	V25-II LF X ST
LF / LF 60 VTX V25-II ST	7	VTX V25-II Low Section Processing: 60 Hz HPF (nominal flat LF)	V25-II LF 60 ST	V25-II LF 60 ST
LF / LF 80 VTX V25-II ST	8	VTX V25-II Low Section Processing: 80 Hz HPF (nominal flat LF)	V25-II LF 80 ST	V25-II LF 80 ST

VTX V25-II-II LONG THROW				
HF / HF VTX V25-II LT	10	VTX V25-II High Section Processing; Long Throw Mode (HF shelf)	V25-II HF LT	V25-II HF LT
MF / MF VTX V25-II LT	11	VTX V25-II Mid Section Processing	V25-II MF LT	V25-II MF LT
MF / HF VTX V25-II LT	12	VTX V25-II Mid / High Section Long Throw Mode (HF shelf) Processing	V25-II MF LT	V25-II HF LT
HF / MF VTX V25-II LT	13	VTX V25-II High Long Throw Mode (HF shelf) / Mid Section Processing	V25-II HF LT	V25-II MF LT
LF / LF X VTX V25-II LT	14	VTX V25-II Low Section Processing: X Mode (with LF shelving)	V25-II LF X LT	V25-II LF X LT
LF / LF 60 VTX V25-II LT	15	VTX V25-II Low Section Processing: 60 Hz HPF (with LF shelving)	V25-II LF 60 LT	V25-II LF 60 LT
LF / LF 80 VTX V25-II LT	16	VTX V25-II Low Section Processing: 80 Hz HPF (with LF shelving)	V25-II LF 80 LT	V25-II LF 80 LT

VTX V25-II-II EXTRA LONG THROW				
HF / HF VTX V25-II XLT	18	VTX V25-II High Section Processing; Extra Long Throw Mode (HF shelf)	V25-II HF XLT	V25-II HF XLT
MF / MF VTX V25-II XLT	19	VTX V25-II Mid Section Processing	V25-II MF XLT	V25-II MF XLT
MF / HF VTX V25-II XLT	20	VTX V25-II Mid / High Section Extra Long Throw Mode (HF shelf) Processing	V25-II MF XLT	V25-II HF XLT
HF / MF VTX V25-II XLT	21	VTX V25-II High Extra Long Throw Mode (HF shelf) / Mid Section Processing	V25-II HF XLT	V25-II MF XLT
LF / LF X VTX V25-II XLT	22	VTX V25-II Low Section Processing: X Mode (with LF shelving)	V25-II LF X XLT	V25-II LF X XLT
LF / LF 60 VTX V25-II XLT	23	VTX V25-II Low Section Processing: 60 Hz HPF (with LF shelving)	V25-II LF 60 XLT	V25-II LF 60 XLT
LF / LF 80 VTX V25-II XLT	24	VTX V25-II Low Section Processing: 80 Hz HPF (with LF shelving)	V25-II LF 80 XLT	V25-II LF 80 XLT

VTX S28 FRONT-FIRING				
SUB / SUB S28 V25 X	26	VTX S28 X Mode (24-80 Hz; Inverted Polarity)	VTX S28 X	VTX S28 X
SUB / SUB S28 V25 60	27	VTX S28 60 Hz LPF	VTX S28 60	VTX S28 60
SUB / SUB S28 V25 80	28	VTX S28 80 Hz LPF	VTX S28 80	VTX S28 80

VTX S28 REAR-FIRING CARDIOID				
SUB / SUB S28 V25 CARDIOID X	30	VTX S28 X Mode ; Rear-Firing Cardioid	VTX S28 C X	VTX S28 C X
SUB / SUB S28 V25 CARDIOID 60	31	VTX S28 60 Hz LPF ; Rear-Firing Cardioid	VTX S28 C 60	VTX S28 C 60
SUB / SUB S28 V25 CARDIOID 80	32	VTX S28 80 Hz LPF ; Rear-Firing Cardioid	VTX S28 C 80	VTX S28 C 80

VTX G28 FRONT-FIRING				
SUB / SUB G28 V25 X	34	VTX G28 X Mode (24-80 Hz; Inverted Polarity)	VTX G28 X	VTX G28 X
SUB / SUB G28 V25 60	35	VTX G28 60 Hz LPF	VTX G28 60	VTX G28 60
SUB / SUB G28 V25 80	36	VTX G28 80 Hz LPF	VTX G28 80	VTX G28 80

VTX G28 REAR-FIRING CARDIOID				
SUB / SUB G28 V25 CARDIOID X	38	VTX G28 X Mode ; Rear-Firing Cardioid	VTX G28 C X	VTX G28 C X
SUB / SUB G28 V25 CARDIOID 60	39	VTX G28 60 Hz LPF ; Rear-Firing Cardioid	VTX G28 C 60	VTX G28 C 60
SUB / SUB G28 V25 CARDIOID 80	40	VTX G28 80 Hz LPF ; Rear-Firing Cardioid	VTX G28 C 80	VTX G28 C 80

VTX V20 DOWN FILL				
HF / HF VTX V20 DF	42	VTX V20 High Section Processing; Down Fill Mode	V20 HF DF	V20 HF DF
MF / MF VTX V20 DF	43	VTX V20 Mid Section Processing; Down Fill Mode	V20 MF DF	V20 MF DF
MF / HF VTX V20 DF	44	VTX V20 Mid / High Section Processing; Down Fill Mode	V20 MF DF	V20 HF DF
HF / MF VTX V20 DF	45	VTX V20 High / Mid Section Processing; Down Fill Mode	V20 HF DF	V20 MF DF
LF / LF X VTX V20 DF	46	VTX V20 Low Section Processing: Down Fill Mode	V20 LF DF	V20 LF DF

Preset Summary Sheet for Crown I-Tech 4x3500HD

Device File: VTX V25-II R1.4 AA.I-Tech 4x3500HD.Device

VTX V25-II SHORT THROW	PRESET	DESCRIPTION	CH 1	CH 2	CH 3	CH 4
VTX V25-II X ST	2	VTX V25-II Short Throw (Nominal Flat) ; LF Section : X Mode	V25-II LF X ST	V25-II LF X ST	V25-II MF ST	V25-II HF ST
VTX V25-II 60 ST	3	VTX V25-II Short Throw (Nominal Flat) ; LF Section : 60 Hz HPF	V25-II LF 60 ST	V25-II LF 60 ST	V25-II MF ST	V25-II HF ST
VTX V25-II 80 ST	4	VTX V25-II Short Throw (Nominal Flat) ; LF Section : 80 Hz HPF	V25-II LF 80 ST	V25-II LF 80 ST	V25-II MF ST	V25-II HF ST
VTX V25-II LONG THROW						
VTX V25-II X LT	6	VTX V25-II Long Throw (LF/HF Shelving) ; LF Section : X Mode	V25-II LF X LT	V25-II LF X LT	V25-II MF LT	V25-II HF LT
VTX V25-II 60 LT	7	VTX V25-II Long Throw (LF/HF Shelving) ; LF Section : 60 Hz HPF	V25-II LF 60 LT	V25-II LF 60 LT	V25-II MF LT	V25-II HF LT
VTX V25-II 80 LT	8	VTX V25-II Long Throw (LF/HF Shelving) ; LF Section : 80 Hz HPF	V25-II LF 80 LT	V25-II LF 80 LT	V25-II MF LT	V25-II HF LT
VTX V25-II EXTRA LONG THROW						
VTX V25-II X XLT	10	VTX V25-II Extra Long Throw (LF/HF Shelving) ; LF Section : X Mode	V25-II LF X XLT	V25-II LF X XLT	V25-II MF XLT	V25-II HF XLT
VTX V25-II 60 XLT	11	VTX V25-II Extra Long Throw (LF/HF Shelving) ; LF Section : 60 Hz HPF	V25-II LF 60 XLT	V25-II LF 60 XLT	V25-II MF XLT	V25-II HF XLT
VTX V25-II 80 XLT	12	VTX V25-II Extra Long Throw (LF/HF Shelving) ; LF Section : 80 Hz HPF	V25-II LF 80 XLT	V25-II LF 80 XLT	V25-II MF XLT	V25-II HF XLT
VTX S28 FRONT-FIRING						
VTX S28 V25 X	14	VTX S28 X Mode (24-80 Hz; Inverted Polarity)	VTX S28 X	VTX S28 X	VTX S28 X	VTX S28 X
VTX S28 V25 60	15	VTX S28 60 Hz LPF	VTX S28 60	VTX S28 60	VTX S28 60	VTX S28 60
VTX S28 V25 80	16	VTX S28 80 Hz LPF	VTX S28 80	VTX S28 80	VTX S28 80	VTX S28 80
VTX S28 REAR-FIRING CARDIOID						
VTX S28 V25 CARDIOID X	18	VTX S28 X Mode ; Rear-Firing Cardioid	VTX S28 C1 X	VTX S28 C1 X	VTX S28 C1 X	VTX S28 C1 X
VTX S28 V25 CARDIOID 60	19	VTX S28 60 Hz LPF ; Rear-Firing Cardioid	VTX S28 C1 60	VTX S28 C1 60	VTX S28 C1 60	VTX S28 C1 60
VTX S28 V25 CARDIOID 80	20	VTX S28 80 Hz LPF ; Rear-Firing Cardioid	VTX S28 C1 80	VTX S28 C1 80	VTX S28 C1 80	VTX S28 C1 80
VTX G28 FRONT-FIRING						
VTX G28 V25 X	22	VTX G28 X Mode (24-80 Hz; Inverted Polarity)	VTX G28 X	VTX G28 X	VTX G28 X	VTX G28 X
VTX G28 V25 60	23	VTX G28 60 Hz LPF	VTX G28 60	VTX G28 60	VTX G28 60	VTX G28 60
VTX G28 V25 80	24	VTX G28 80 Hz LPF	VTX G28 80	VTX G28 80	VTX G28 80	VTX G28 80
VTX G28 REAR-FIRING CARDIOID						
VTX G28 V25 CARDIOID X	26	VTX G28 X Mode ; Rear-Firing Cardioid	VTX G28 C1 X	VTX G28 C1 X	VTX G28 C1 X	VTX G28 C1 X
VTX G28 V25 CARDIOID 60	27	VTX G28 60 Hz LPF ; Rear-Firing Cardioid	VTX G28 C1 60	VTX G28 C1 60	VTX G28 C1 60	VTX G28 C1 60
VTX G28 V25 CARDIOID 80	28	VTX G28 80 Hz LPF ; Rear-Firing Cardioid	VTX G28 C1 80	VTX G28 C1 80	VTX G28 C1 80	VTX G28 C1 80
VTX V20 DOWN FILL						
VTX V20 DF	30	Down Fill preset to be used for VTX V20 suspended under V25-II	V20 LF DF	V20 LF DF	V20 MF DF	V20 HF DF

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