



type **F22A**

Applications

Near and Mid Field Monitoring
Recording and Broadcast Studio
Mastering Studio
Project and Home Studio
Multimedia Playback and Production
Music Listening Room

Design Philosophy

Type F22A is a two-way compact bi-amplified active monitor system. It is specifically designed for the most accurate sound reproduction within the frequency range of the human ear. Type F22A is a reference playback system that has low frequency extension that is comparable to much larger systems.

In music, the middle C's frequency is 261.6 Hz based on the equal temperament tuning. Middle C is located right in the middle of the human ear's to perceive a complex sound. The fundamental frequency of a musical pitch is often located in the range of 100-1000 Hz. Type F22A reproduces very linear and accurate sound reproduction at these frequencies, denoted by its linear frequency and phase response.

Technology

Type F22A utilizes modern digital processing. Hybrid minimum phase and linear phase filters are carefully implemented as the crossover and correction filters with low processing delay. As a result, type F22A maintains very flat phase response while utilizing exceptionally steep crossover filters to control out-of-band frequencies in each transducer. The flat phase response suggests that most frequencies arrive at the same time, in addition the waveform of the original signal from 100 Hz and up is precisely reproduced.

Type F22A features two 500 W @ 4 Ohms class-D amplifier modules. The ample power maintains a high crest factor for sound reproduction in the high frequency region with low levels of distortion. Each transducer is digitally protected from over loading and over excursion.



Presets

Type F22A features two voicings: a flat on-axis preset for a critical monitoring and a wide sweetspot for musicians/composers. The wide sweetspot preset is created by calculating and analyzing the power response of the monitor to accommodate the best off-axis listening experience.

The bass tilt presets are created with room acoustics in mind, where the corner frequency is not fixed, maintaining a very neutral and smooth overall response. The bass tilt presets will accommodate different sizes of rooms, including flush mounting compensation.

Structure

To maintain solid and tight low frequency performance, type F22A features an optimized vented cabinet design with an internally braced wood enclosure. The resonance within the cabinet is further minimized by the asymmetrical interior shape and the port is carefully optimized, resulting in very clean and transparent low and low mid frequency reproduction.

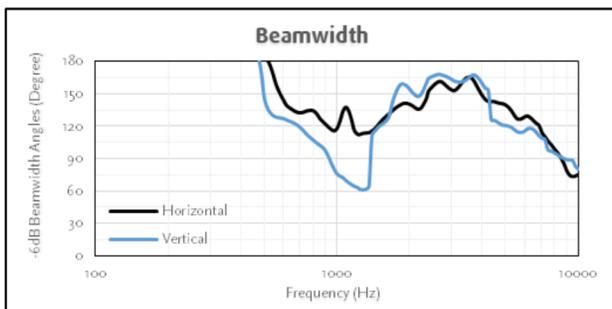
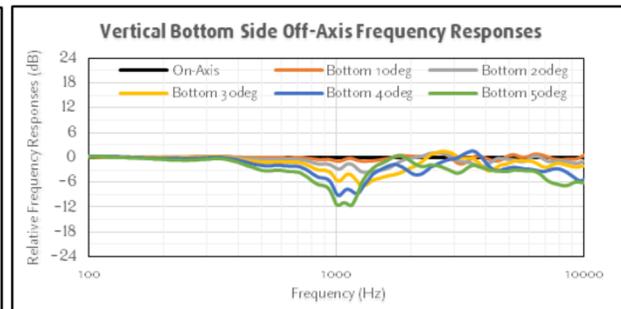
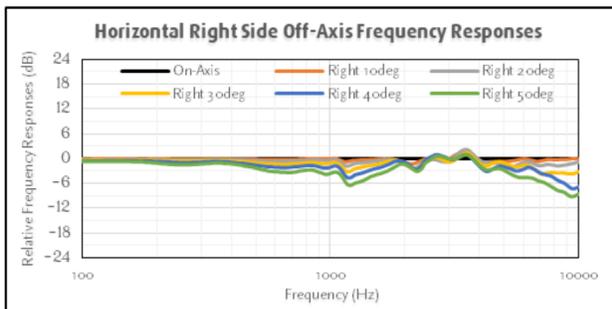
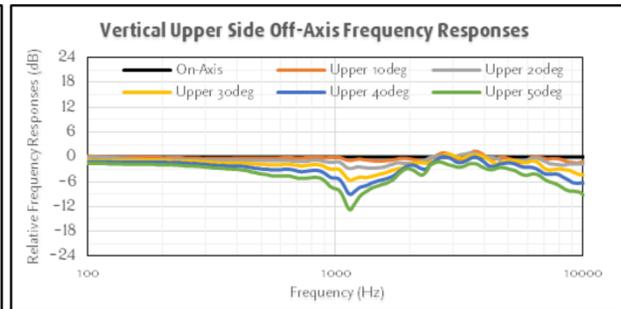
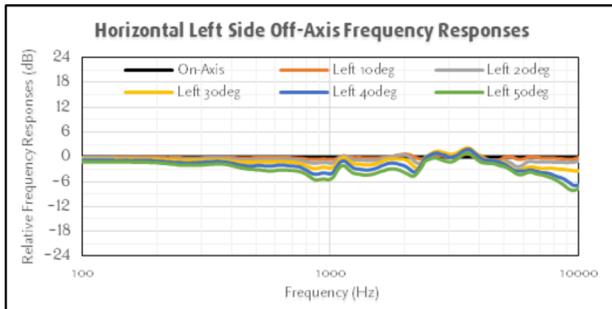
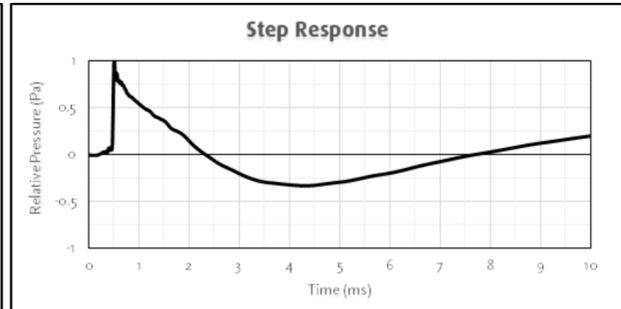
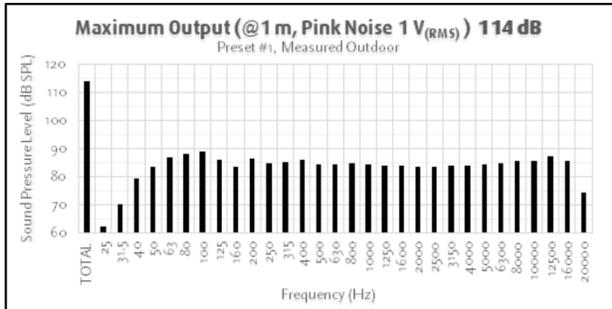
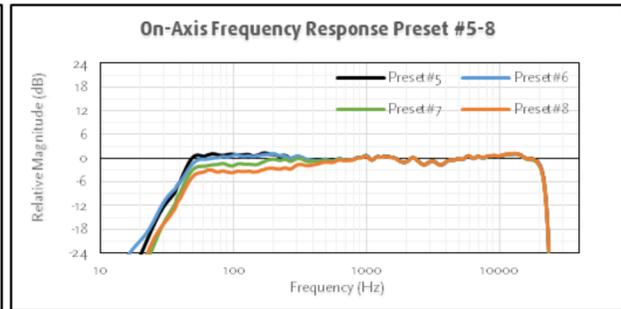
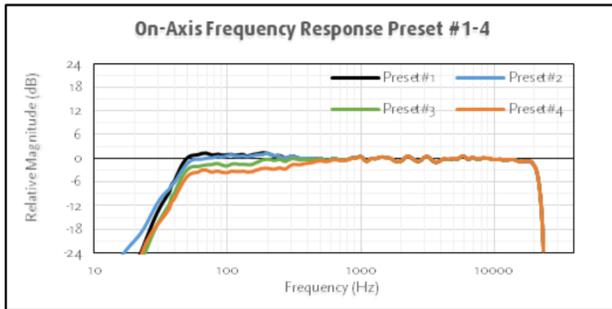
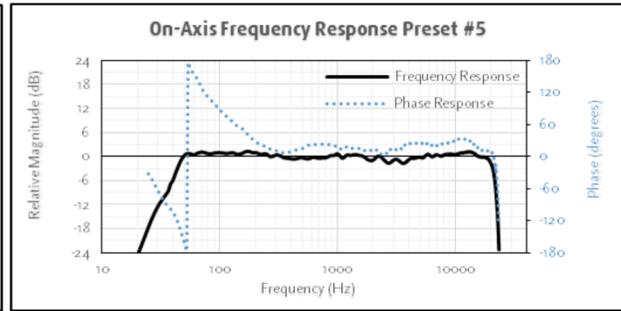
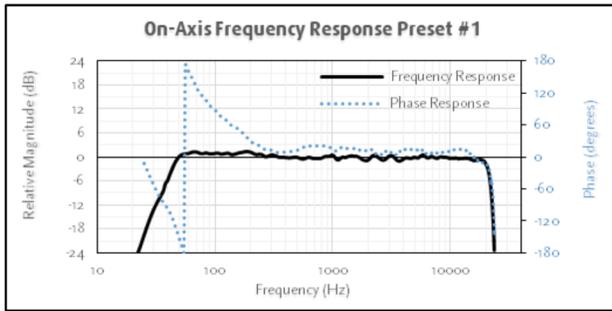
The input is a balanced female XLR connection with universal mains power supply.

System Specification

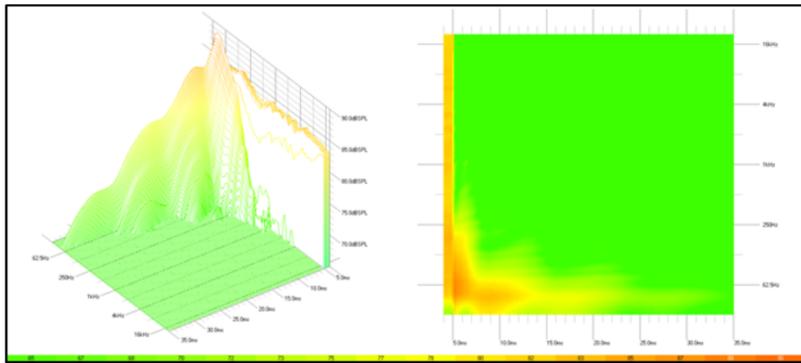
Description	Two-Way, Bi-Amp High Fidelity Loudspeaker	
Frequency Response (Preset #1)		
Optimum Range (-1 dB)	50 Hz - 20000 Hz [+/- 1 dB variation]	
Nominal Range (-3 dB)	45 Hz - 21500 Hz	
Operating Range (-10 dB)	35 Hz - 23000 Hz	
Phase Response (Preset #1)	+/- 20 deg, >200 Hz	
Maximum Output @1 m, 1 Vrms	114 dB [Averaged Slow Response, Free Space]	
Drive Unit		
Low Frequency	200 mm [8 in.]	Reinforced Aluminum Cone
High Frequency	25 mm [1 in.]	Textile Soft Dome Diaphragm
Harmonic Distortion @1 m / 92 dB		
>100 Hz	<1% [< -40 dB]	
50 - 100 Hz	<3% [<-30 dB]	
Nominal Dispersion [< 7000 Hz]	120 deg	
Digital Crossover		
Frequency	1200 Hz	
Type	8th Order, Hybrid: Linear FIR & IIR Filters	
Total Digital Signal Processing Delay	4.9 ms	
Digital Protection	Tweeter and Woofer, DSP based	
DSP Sample Rate/Bit Depth	48000 Hz / 24 bit	
Presets		
Preset #1	Flat Output	No Bass Tilt
Preset #2	Flat Output	-1.5 dB (<100 Hz)
Preset #3	Flat Output	-3 dB (<200 Hz)
Preset #4	Flat Output	-4.5 dB (<300 Hz)
Preset #5	Wide Sweetspot	No Bass Tilt
Preset #6	Wide Sweetspot	-1.5 dB (<100 Hz)
Preset #7	Wide Sweetspot	-3 dB (<200 Hz)
Preset #8	Wide Sweetspot	-4.5 dB (<300 Hz)
Enclosure		
Design	Optimized Vented Box Design	
Material / Finish	MDF / Textured Black, Water Based	
Body Dimension (H x W x D)	404.4 mm [16 in.] x 292.1 mm [11.5 in.] x 355.6mm [14 in.]	
Depth with Heat Sink	380mm [15 in.]	
Minimum Back Space Requirement	100 mm [4 in.] from the back wall	
Weight	10.5 kg [23.1 lbs]	
Optimum Listening Distance	0.8 m [32 in.] - 3m [118 in.]	

Amplifier Specification

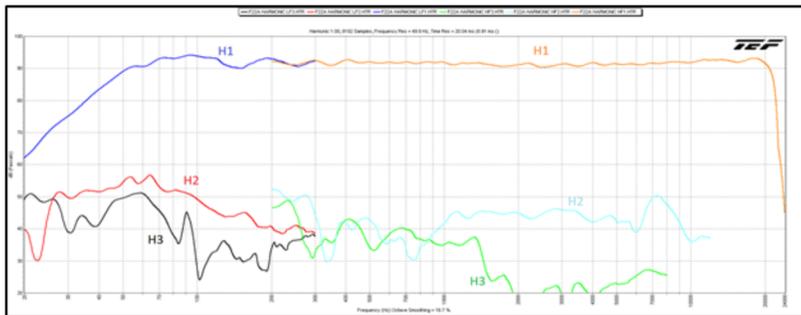
Class	D
Output	
Low Frequency	500 W @ 4 Ohms
High Frequency	500 W @ 4 Ohms
Operating Range	85-265 V, Universal Mains
Power Consumption [Idle / Max]	11.2 W / 173 W
Signal To Noise Ratio	> 102 dB (A-weighted, 20 Hz - 20000 Hz, 8 Ohm Load)
Input Connector	XLR electronically balanced
THD + N	<0.01 % (20 Hz - 20 kHz, 8 Ohm, -3 dB Rated Power)
Maximum Input	
Sine Wave	3 Vrms [4.2 Vpeak]
Pink Noise 12 dB Crest Factor	1 Vrms [4 Vpeak]



Waterfall & Spectrogram



Harmonic Distortion



Measurement Technical Notes

On & Off-Axis Frequency Responses Waterfall & Spectrogram Screenshots Step Response	1/6 octaves smoothing Ground plane measurement <350 Hz Free-space measurement >350 Hz 2 m microphone distance Tweeter as the On-Axis Reference
Maximum Output	1/3 octaves smoothing Free-space measurement on a 2 m loudspeaker stand No windowing, RTA with Pink Noise 12 dB crest factor Limiter is engaged and frequency response slightly changes 1 m microphone distance
Beamwidth	1/6 octaves smoothing First 6 dB sound pressure level drop relative to the on-axis
Harmonic Distortion Screenshot	Free-space measurement on a 2 m loudspeaker stand 1 m microphone distance 0.5 Vrms linear sine wave input 1/6 octaves smoothing 50 Hz resolution >300 Hz 6 Hz resolution <300 Hz
Other Information	All measurements were performed in outdoor environment Pair matched within +/- 0.5 dB All measurements are based on the default right loudspeaker [Tweeter on the right side]

Specifications are subject to change without notice.