



PRO-1.9	190CM/75 INCH
PRO-1.3	130CM/50 INCH
PRO-1.0	100CM/40 INCH

Planar - Magnetic Loudspeakers

Description

The **RADIA PRO Pro-Line SERIES** loudspeakers offer proprietary planar design that gives the user significant advantages over conventional loudspeaker systems. For the first time the Pro-Line combines high performance planar technology with extraordinary dependability and high SPL output at a very affordable price. The result is a sturdy transducer for professional use that works as a line source radiator. All models of the Pro-Line series are equipped with "Ceramic 8 Planar Motors". The driving force is transferred linearly onto an ultra thin polyethylene naphthalate (PEN) membrane, whose moving mass is actually less than the reactive mass of the adjacent air. The exceptional wide bandwidth of the Pro-Line series provides quality audio reproduction from as low as 150Hz to the point of inaudibility - a virtual revolutionary performance for such a compact loudspeaker system. All Pro-Line models are architecturally pleasing and fit into any environment. They are especially well suited for media presentation walls, AV and multimedia presentations.

Traditional cone-type loudspeakers produce a characteristic radiation pattern that is best described as a "point source", with output levels diminishing rapidly as the distance increases between the listener and the

loudspeaker (inverse-square law - 6dB drop for every doubling of distance). The **RADIA PRO SERIES** do not suffer these same physical and psychoacoustic limitations, as they are characterized by sound pressure levels that are *linearly* inversely proportional to the distance, resulting in a 3dB reduction.

The **RADIA PRO SERIES** feature unmatched bandwidth, power handling and ruggedness and provide increased speech intelligibility.

The **RADIA PRO SERIES** line source operates as a one-way loudspeaker above the bass crossover point, thereby achieving the ideal of coherent, consistent amplitude (loudness) and phase response.

All these distinctive features result in a system that has unbeatable application efficiency, providing the best performance parameters and aesthetics for a given investment.

Features

- True planar technology
- High acoustic output
- True line source behavior
- Controlled dispersion
- $\frac{1}{2}$ the roll-off rate of conventional loudspeakers
- Architecturally pleasing

Applications

- Multimedia
- Auditoriums
- Courts of Law
- Performing Arts Centers
- Houses of Worship
- Hotel Meeting Rooms
- Conference Centers
- Sports Facilities
- Theme Parks
- Mass Transportation
- Cruise Ships
- Museums
- Cinemas
- And many more...



Characteristic	Pro-1.9	Pro-1.3	Pro-1.0	* Pro-0.7
Frequency Response	150 Hz – 18.5 kHz			
Transducer Type	Push-pull Planar Magnetic			
Crossover Frequency	150 Hz, 12 dB/Oct	150 Hz, 24 dB/Oct.		
Dispersion Characteristics Vertical	Coverage area corresponds to the driver length Projected into the listening area along the direction of its acoustic axis			
Dispersion Characteristic Horizontal (-6 dB)	150 Hz - 6 kHz > 120° 6 kHz – 12 kHz > 80° 12 kHz – 16 kHz > 60°			
Nominal Impedance	6 Ohm	4 Ohm	3 Ohm	4 Ohm
Maximum SPL	114 dB	110 dB	109 dB	107 dB
Sensitivity	90 dB / 2.83 Vrms / 1 m			
Power Handling (AES)	200 W continuous 800 W Peak	130 W continuous 500 W Peak	100 W continuous 400 W Peak	70 W continuous 250 W Peak
Color:	Transducer – Black, Grille – White (Black available)			
Dimensions (W x H x D)	120 x 1920 x 42 mm 4.73 x 75.59 x 1.65 inch	120 x 1310 x 42 mm 4.73 x 51.57 x 1.65 inch	120 x 1016 x 42 mm 4.73 x 40.00 x 1.65 inch	120 x 710 x 42 mm 4.73 x 27.95 x 1.65 inch
Weight	16.1 kg 35.5 lbs	13.5 kg 29.8 lbs	11.4 kg 25.1 lbs	7.5 kg 16.5 lbs

Note: Radia Pro is engaged in continuous Research and Development efforts, and is constantly improving its products. Therefore, these specifications are subject to change without notice.

* **Pro-0.7 to be discontinued – check with Radia Pro for availability**

ARCHITECTS' AND ENGINEERS' SPECIFICATIONS

The Pro-Line loudspeakers shall have an operating bandwidth of 150Hz to 20kHz. The nominal output level shall be 90dB (Pro-1.9), 90dB (Pro-1.3), 90dB (Pro-1.0), 90dB (Pro-0.7) when measured at a distance of one meter with an input of 2.83 Volts rms. The nominal impedance shall be 6 ohms (Pro-1.9), 4 ohms (Pro-1.3), 3 ohms (Pro-1.0), 4 ohms (Pro-0.7). The maximum continuous power handling shall be 200 watts (800 W peak) for the Pro-1.9, 130 watts (500 W peak) for the Pro-1.3, 100 watts (400 W peak) for the Pro-1.0, 70 watts (250 W peak) for the Pro-0.7. The loudspeaker assembly shall deliver a maximum, full-range SPL level of 114 dB (Pro-1.9), 110 dB (Pro-1.3), 109 dB (Pro-1.0), 107 dB (Pro-0.7). The nominal horizontal radiation geometry (-6dB) of the Pro-Line shall be 120° (150Hz – 6kHz), 80° (6kHz – 12kHz) and 60° (12kHz – 16kHz). Dispersion characteristics in the vertical – Coverage area corresponds to the driver length projected into listening area along the direction of its acoustic axis. The Pro-Line loudspeakers shall exhibit true line source behavior and shall be linearly inversely proportional to the double of distance – (-3dB loss). Conventional loudspeakers behaving as a point source shall not be acceptable. The loudspeaker shall be the Radia Pro Pro-1.9, Pro-1.3, Pro-1.0 or Pro-0.7.

5 YEAR LIMITED WARRANTY

NOTE: For details, refer to the warranty statement included in the Radia Pro Speakers price schedule. Features and specifications subject to change without notice.
Radia Pro Speakers by Bohlender-Graebener
1127 Sterling Street
Warwick, PA • 18974 • USA
Tel (215) 682-0130 • Fax (215) 682-0131 • www.bgcorp.com



Pro-1.9 in Vertical Application



Pro-1.9 Free Standing

These illustrations depict how **Pro-Line** transducers can be successfully integrated into architecturally demanding environments.

For freestanding and wall-mounting applications, a wide range of enclosures are possible – resulting in a variety of pleasing installations.

The unique dispersion characteristic of these transducers makes possible new sound reinforcement concepts, particularly in difficult acoustic environments.

Pro-Line technology is ideally suited for ceiling applications. In these configurations the dispersion behavior leads to unsurpassed sonic quality and intelligibility. The listening area is filled with homogeneous sound without hot spots or unwanted reflections from nearby hard surfaces. The result is a unique, uniform listening experience.

Give us your problem, we'll give you a solution!



Pro-1.9 in Ceiling Application

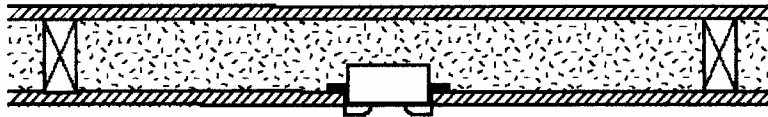
Installation

Installation of **Pro-Line** transducers in walls and ceilings

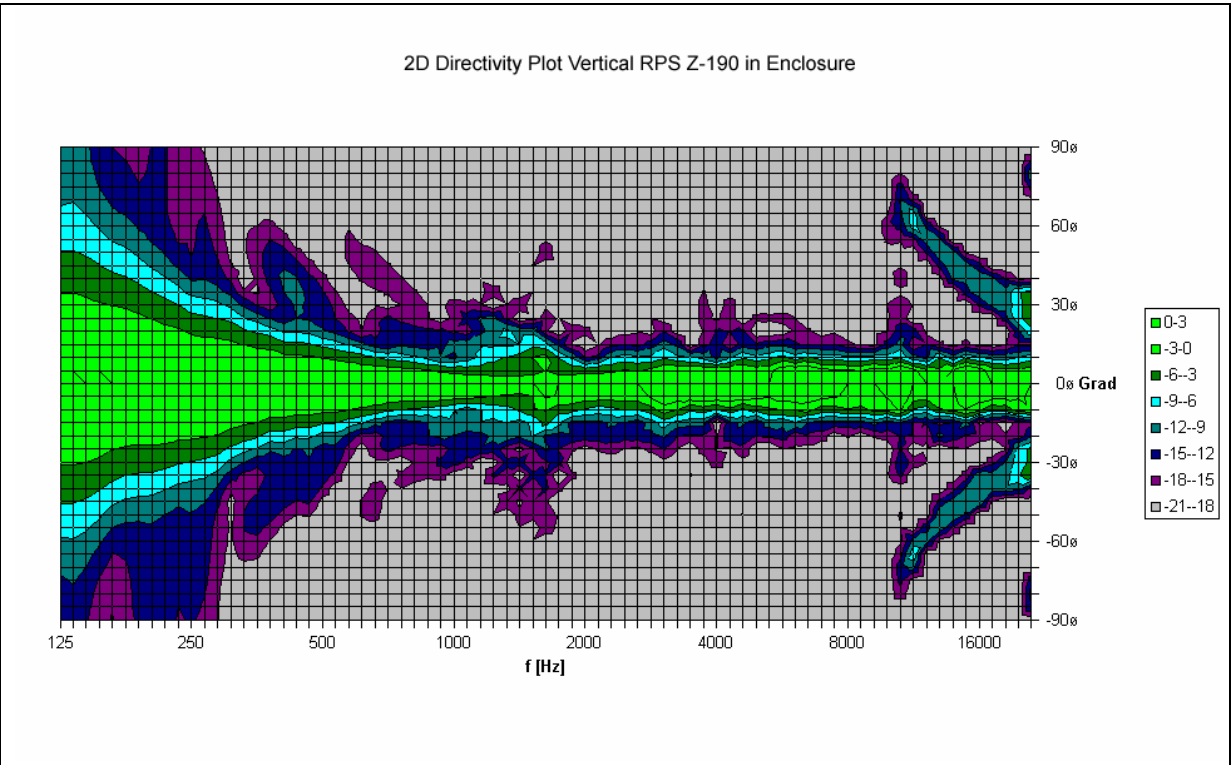
Pro-Line Hybrid Planar transducers are true dipoles and reproduce the same energy on both sides of the transducer. With the installation of the transducer in a wall or enclosure, it becomes necessary to dampen the rear sound wave. The frequency response shown in the data sheets was measured in an enclosure or an infinite baffle. Incorrect enclosure volume will hinder the lower frequencies below the crossover point of 125 to 150 Hz and will not provide a smooth frequency response.

1. Plan a volume of at least $0.35 \text{ ft}^3/300 \text{ cm}^3$ in cross-section (width x depth). The height of the cavity must correspond to the height of the transducer being used.
2. Always line the cavity or enclosure with uncompressed fibrous absorption material such as fiberglass, wool, etc. and avoid extremely hard acoustic surfaces.
3. To reduce or minimize reflections, leave at least a 3 inch/7cm space between the back of the transducer and the rear of the wall or enclosure.

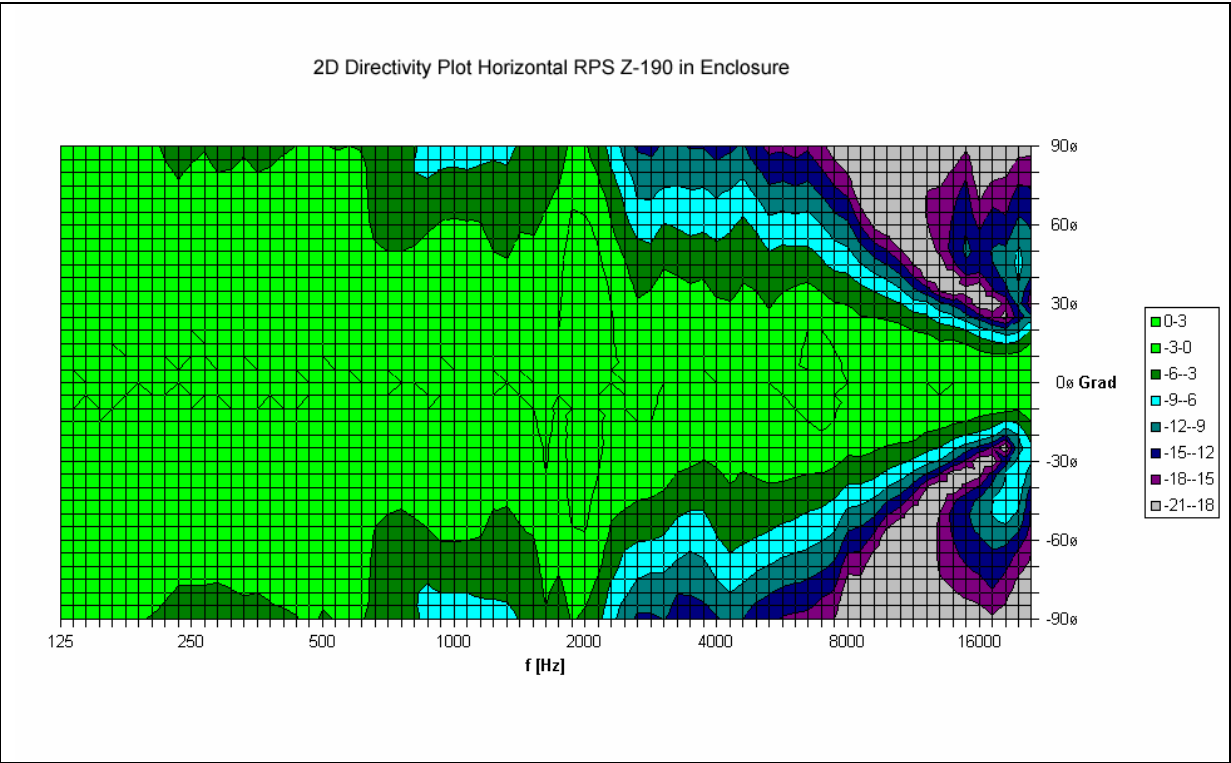
There are no advantages to varying the size of the enclosure. The enclosure is used only for the absorption of the rear sound wave. One important advantage of **Pro-Line** technology to conventional cone-type or 2-way (LF woofer/HF horn) type loudspeakers lies in the



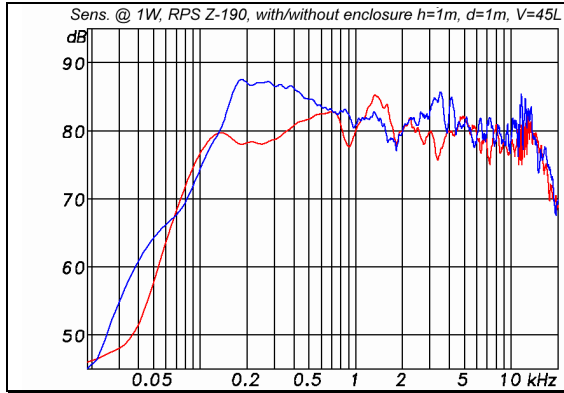
membrane of the **Pro-Line**. The membrane has a very low resistance to the air and is practically transparent for the sound. Reflections that may appear in the enclosure cavity can disturb the audio dispersion characteristics and should be avoided by following the correct installation methods above.



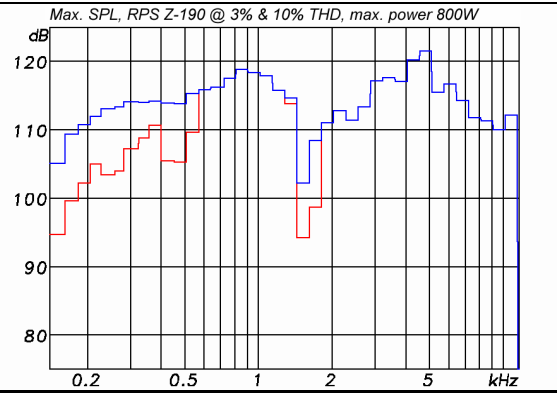
Vertical isobars of Pro-1.9 in Enclosure (Measurement distance 5m)



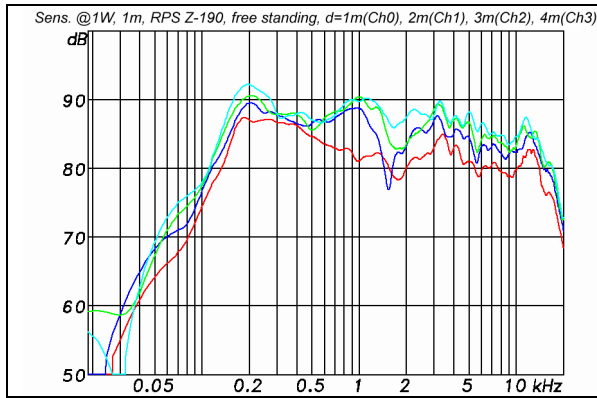
Horizontal isobars Pro-1.9 in Enclosure (Measurement distance 5m)



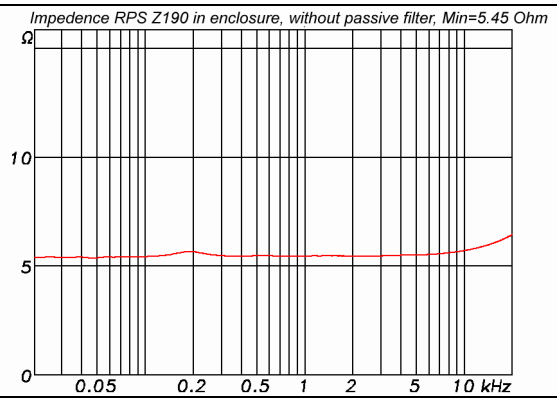
Frequency response Pro-1.9 with/without enclosure, free standing on hard surface in $1/2$ freefield.



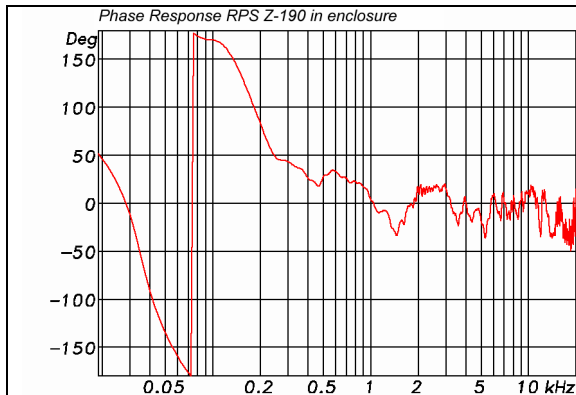
Max. SPL Pro-1.9 in enclosure free standing



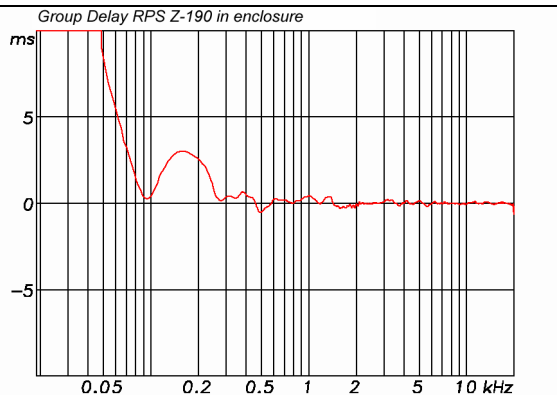
Frequency response Pro-1.9 in enclosure, free standing on hard surface in $1/2$ freefield. Microphone distance **d=1m**(red), **d=2m**(blue), **d=3m**(green) and **d=4m**(cyan) from floor. Microphone height at 1m (h=1m) from floor. Sensitivity for all curves is at 1W/1m.



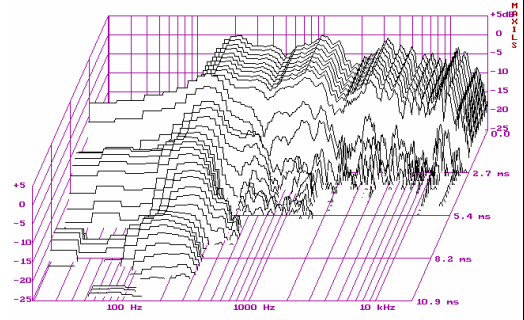
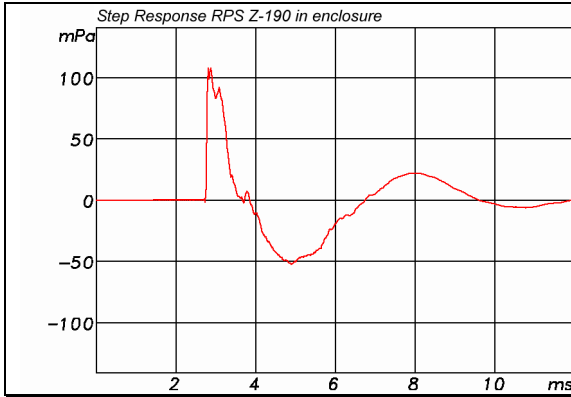
Impedance of the Pro-1.9 in enclosure, free standing on hard surface in $1/2$ freefield with passive filter; Resonant frequency: $f_c=190$ Hz $Q_{tc}=\dots$



Phase response Pro-1.9 in enclosure, free standing on hard surface in $1/2$ freefield.



Group delay Pro-1.9 in enclosure, free standing on hard surface in $1/2$ freefield.

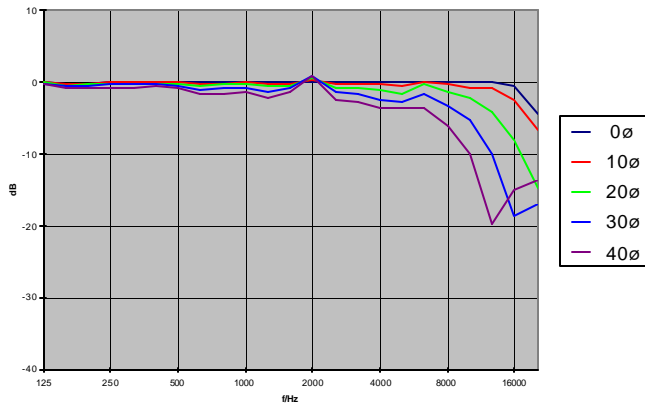


Step response Pro-1.9 in enclosure, free standing on hard surface in $1/2$ freefield.

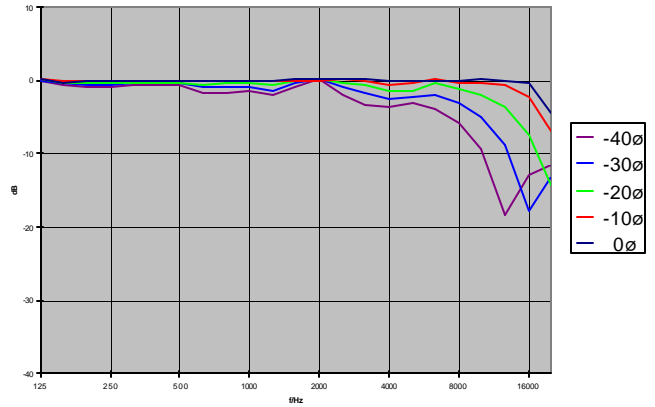
Decay spectrum Pro-1.9 in enclosure, free standing on hard surface in $1/2$ freefield.

Horizontal

Frequency Response Off Axis +

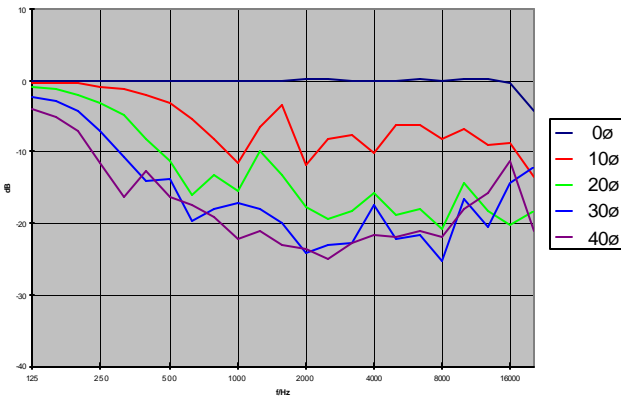


Frequency Response Off Axis -

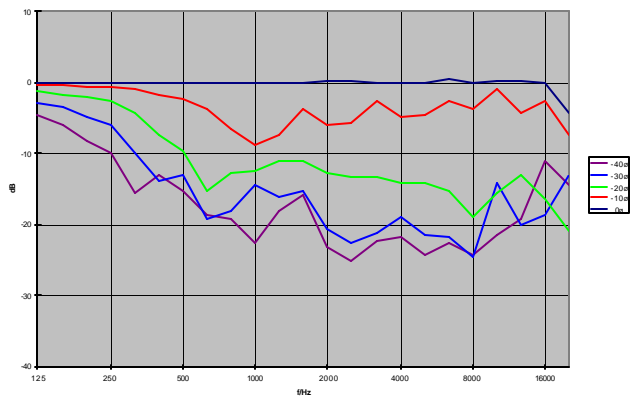


Vertical

Frequency Response Off Axis +

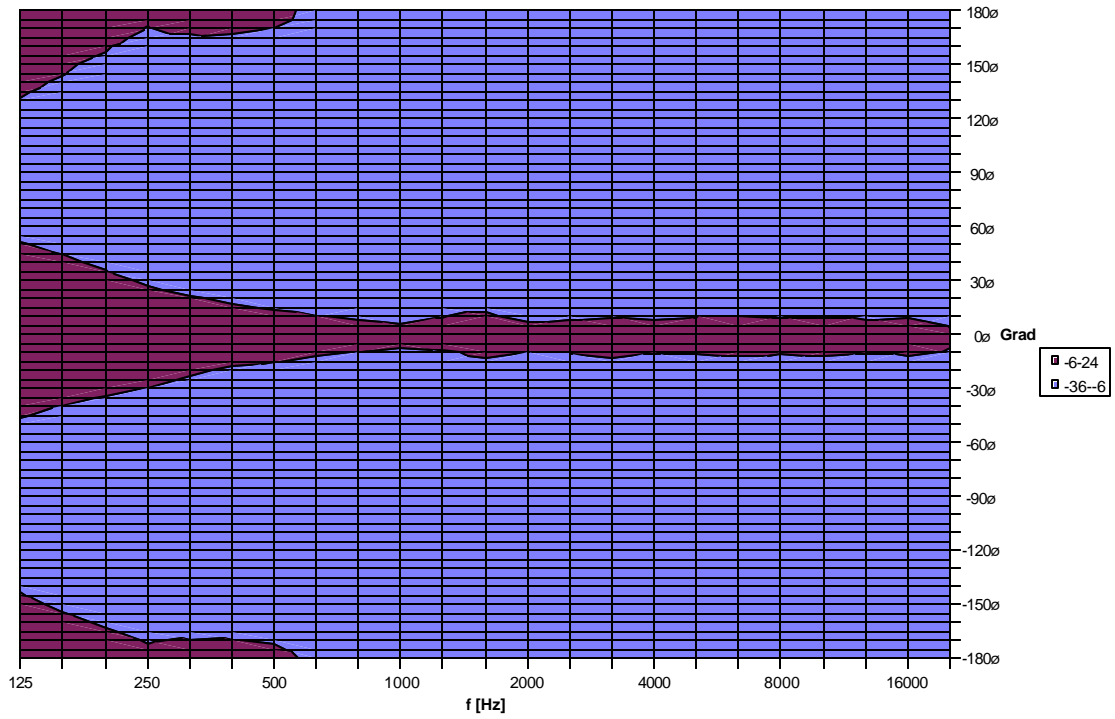


Frequency Response Off Axis -



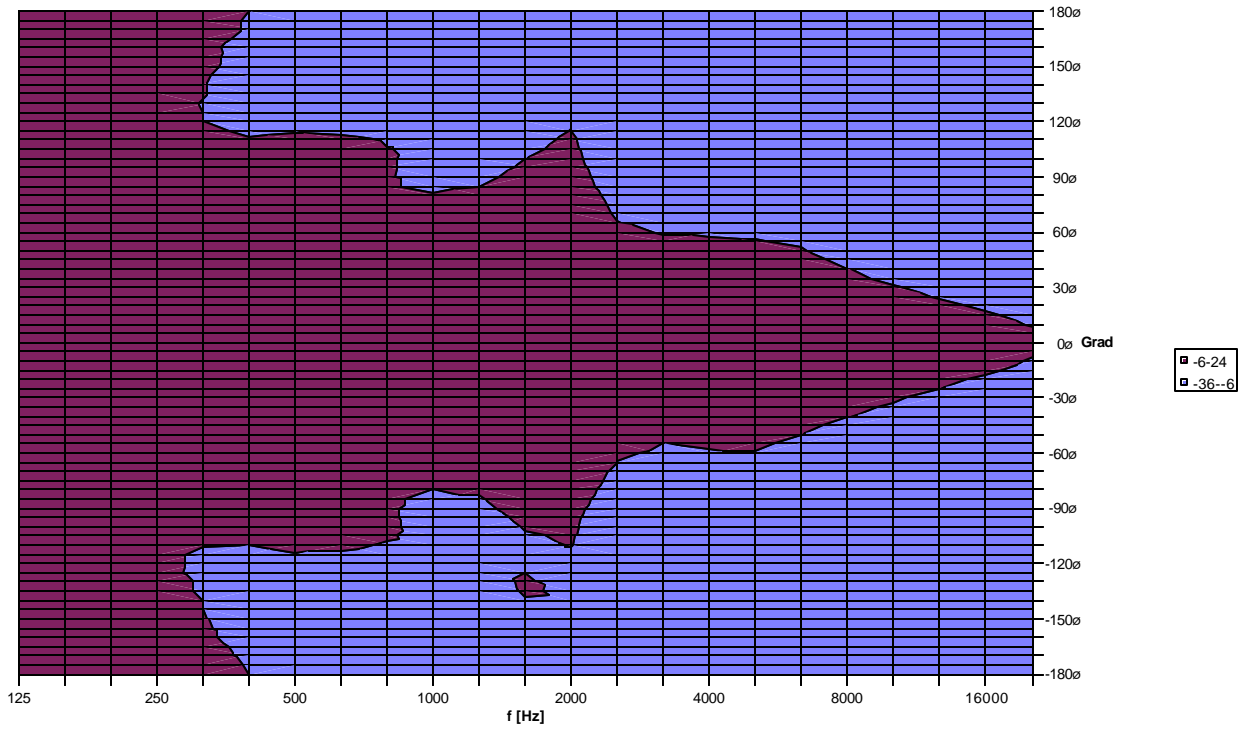
Vertical

Frequency Response +/- Off Axis
-6 dB Iso-bars

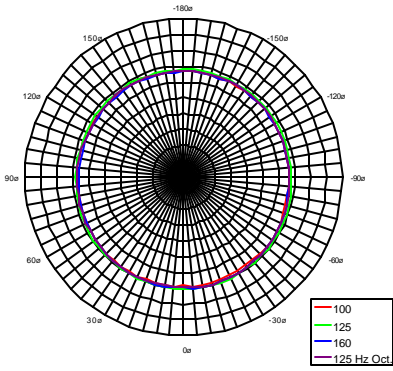


Horizontal

Frequency Response +/- Off Axis
-6 dB Iso-bars

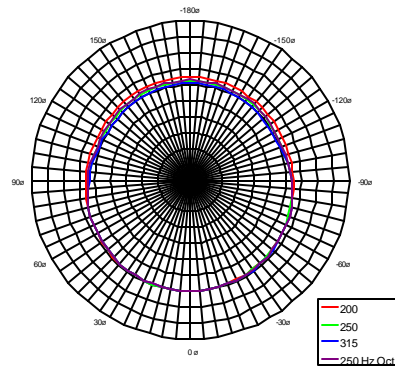


Polar Plots at 125 Hz Octave: 6dB/division

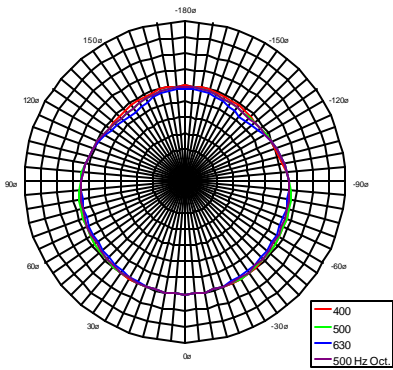


Horizontal Polars

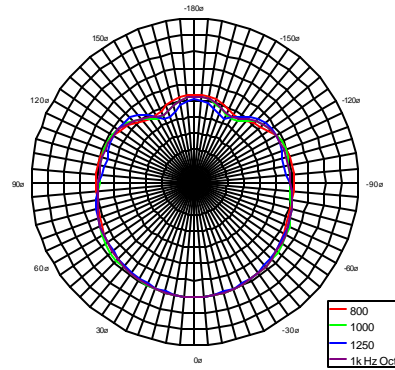
Polar Plots at 250 Hz Octave: 6dB/division



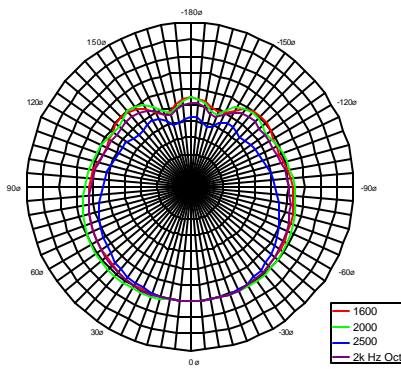
Polar Plots at 500 Hz Octave: 6dB/division



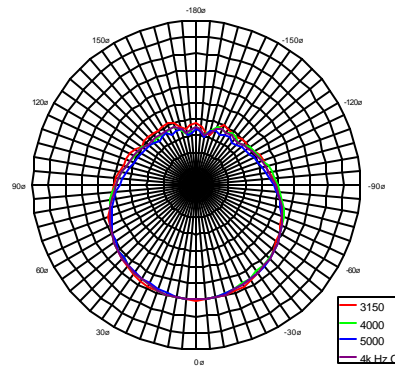
Polar Plots at 1k Hz Octave: 6dB/division



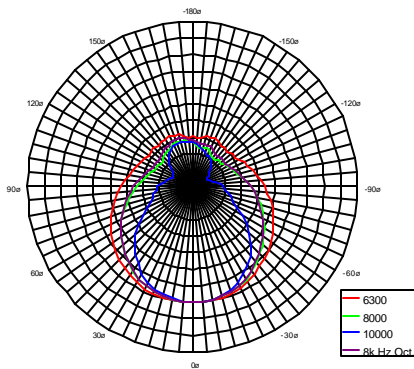
Polar Plots at 2k Hz Octave: 6dB/division



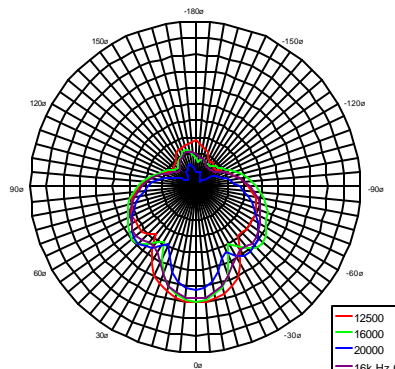
Polar Plots at 4k Hz Octave: 6dB/division



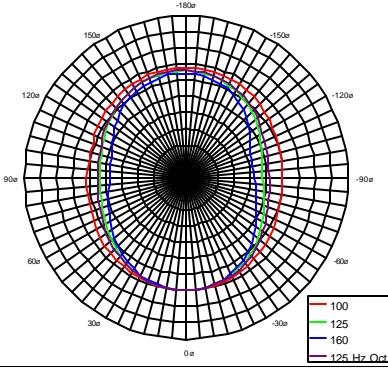
Polar Plots at 8k Hz Octave: 6dB/division



Polar Plots at 16k Hz Octave: 6dB/division

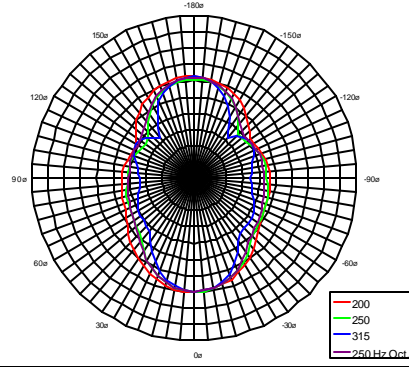


Polar Plots at 125 Hz Octave: 6dB/division

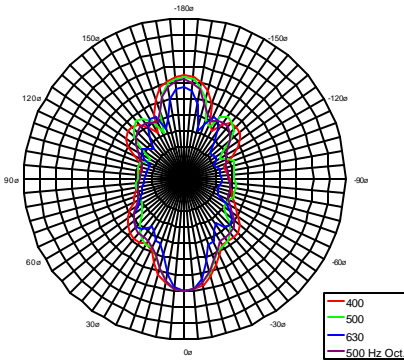


Vertical
Polars

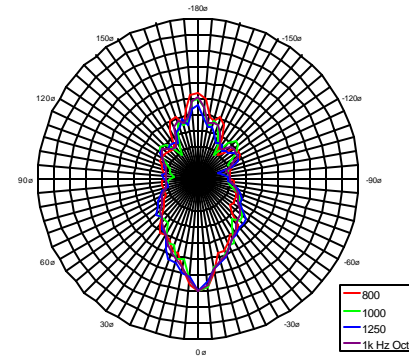
Polar Plots at 250 Hz Octave: 6dB/division



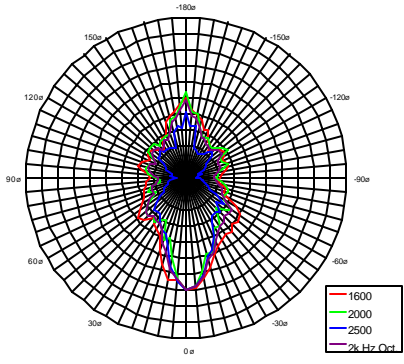
Polar Plots at 500 Hz Octave: 6dB/division



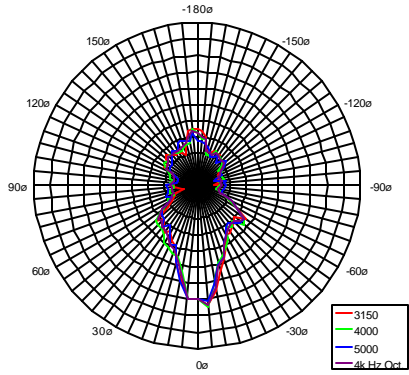
Polar Plots at 1k Hz Octave: 6dB/division



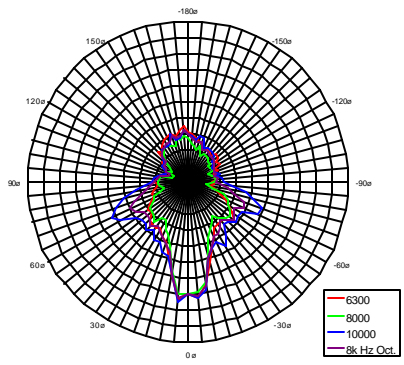
Polar Plots at 2k Hz Octave: 6dB/division



Polar Plots at 4k Hz Octave: 6dB/division



Polar Plots at 8k Hz Octave: 6dB/division



Polar Plots at 16k Hz Octave: 6dB/division

