



ACOUSTIC & ELECTRO-ACOUSTIC CONSULTANTS

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Loudspeaker Test Report

Make: Next Two Ltd.

Type: Bi-directional

Model: SAFE BI-DI 6T

For: Next Two Ltd., Uckfield, Sussex.

Report No. 1125/L/S/SAFEBI-DI6T

Prepared By: A. N. Stacey B.Sc

August 2000

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Electro-Acoustics:
Sound System Design
Conference Systems
Reverberation Enhancement
Emergency Evacuation System Design

Environmental Acoustics:
Noise Nuisance
Traffic Survey
HSE – Hearing Risk
Expert Witness

Speech Intelligibility:
Prediction Models
RASTI Measurements
Word Score Measurements

Architectural & Building Services:
Acoustics:
Building Services Noise
Room Acoustics
Reverberation Control
Noise Control

1.00 Object

1.01 The object of this Report is to present measurements of the acoustic performance of the SAFE BI-DI 6T loudspeaker.

2.00 Scope

2.01 The following characteristics were measured

- (i) ON-axis frequency response
- (ii) Polar response
- (iii) Impedance
- (iv) Applied voltage
- (v) ON-axis octave band sound pressure level.

from which the following are calculated

- (a) Directivity Q
- (b) Directivity Index (DI)
- (c) -6dB Dispersion angle
- (d) Octave band sensitivity dB @ 1W @ 1m
- (e) Overall sensitivity:
 - dBA @ 1W @ 1m
 - dBLin @ 1W @ 1m
- (f) Octave band power apportionment
- (g) Polar response charts.

3.00 Loudspeaker Information

3.01 The loudspeaker manufacturer is Next Two Ltd.

3.02 The following loudspeaker and transformer combination was measured:

- (i) SAFE BI-DI 6T.
- (ii) Transformer Power Tapping of 6W.

3.03 The loudspeaker under test is a Bi-directional type with 2 drive unit.

4.00 Method

4.01 The speaker was mounted in half space as shown in fig. 1-Mounting Method C.

- 4.02 The measurements were made in a anechoic chamber.
- 4.03 Measurements were made as detailed in AMS Test Method document No. TP/1/97.
- 4.04 All measurements were in general accordance with BS 6840: Part 5: 1995.

5.00 Results

- 5.01 The ON-axis frequency response of the loudspeaker is shown graphically in Appendix A.
- 5.02 The Impedance of the loudspeaker is shown graphically in Appendix B.
- 5.03 Polar plots of the loudspeaker are shown in Appendix C.
- 5.04 The Q values have been calculated using subtended area weighting method.
- 5.05 Tabulated values of Sensitivity, Directivity Q, Directivity Index DI, Impedance, Angular Dispersion and Apportionment of Power are shown in the Summary Data Sheet.

6.00 Notes

Angular Dispersion

- 6.01 The angular dispersion is calculated from the directivity data as the -6dB points. It should be understood that BS 6840: Part 5: 1995 requires -10dB points. The -10dB points may be deduced by inspection from the polar plots.

Sensitivity

- 6.02 The octave band sensitivity is produced in its useful form for calculations. It should be noted that the octave band sensitivity is given as dB @ 1W @ 1m. To determine the output when only the overall power is known then only the overall Lin value should be used.

- 6.03 For more detailed information refer to AMS Acoustics Data Sheet 'Loudspeaker Sensitivity - Interpretation of Results'.

Polar Plots

- 6.04 For convenience each polar plot has been normalised to 100dB (generally ON-axis). For this reason caution is advised when comparison of levels between octave bands is made. The ON-axis frequency response should be used for comparison purposes.

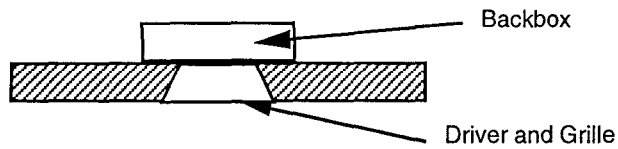
Originator:



Countersigned:

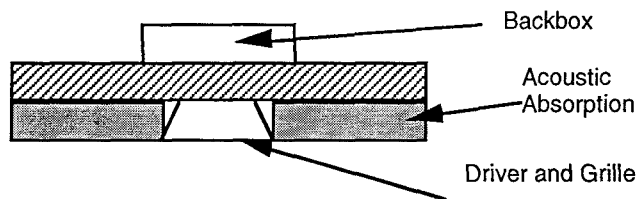


Loudspeaker Mountings



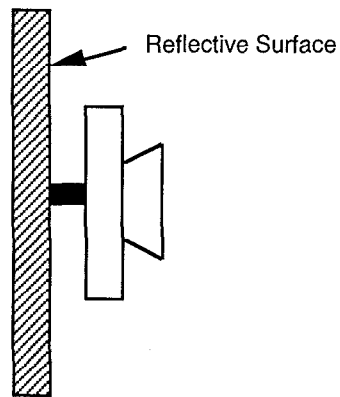
Mounting Method A

Loudspeaker mounted in a reflective baffle.



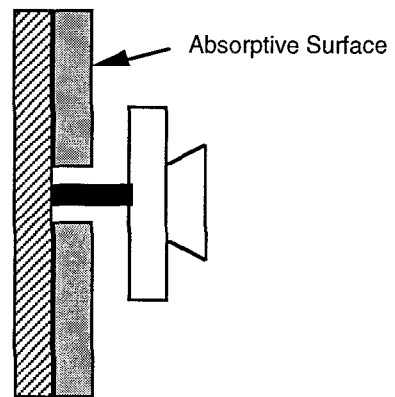
Mounting Method B

Loudspeaker mounted in an absorbent baffle.



Mounting Method C

Loudspeaker mounted on a reflective surface.



Mounting Method D

Loudspeaker mounted on an absorptive surface.



Mounting Method E

Loudspeaker not attached to any surface and radiation unaffected by nearby reflecting surfaces.

Fig.1

Louspeaker Information

Code: SAFE BI-DI6T

Manufacturer: Next Two Ltd.

Colour: White

External Detail

Case: Metal

Mounting: Half Space

Grille: Metal

Length: 21cm

Breadth: 10cm

Weight: 2kg

Labels: None

Badges: None

Internal Detail

Drivers

Numbers: 2

Type: Bi-Directional

Serial No.: Not Known

Other Markings: None

Driver Connections: Not Known

Transformer: 6W

Special Features: None

Damping Material: Mineral Fibre

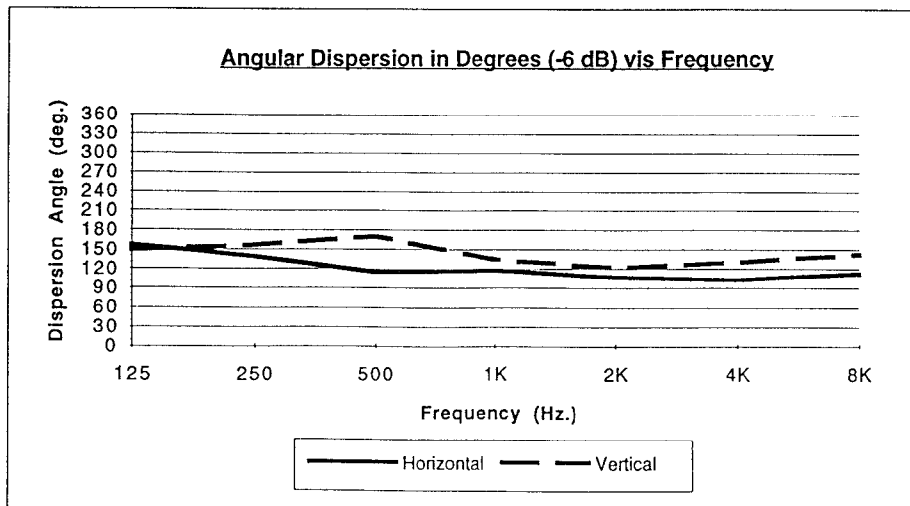
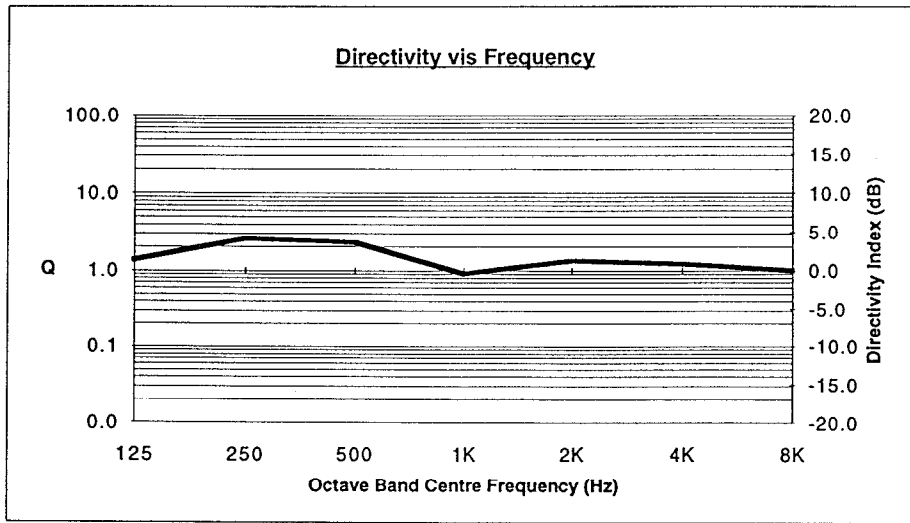
Tappings: 6W, 3W, 1.5W, 0.75W.

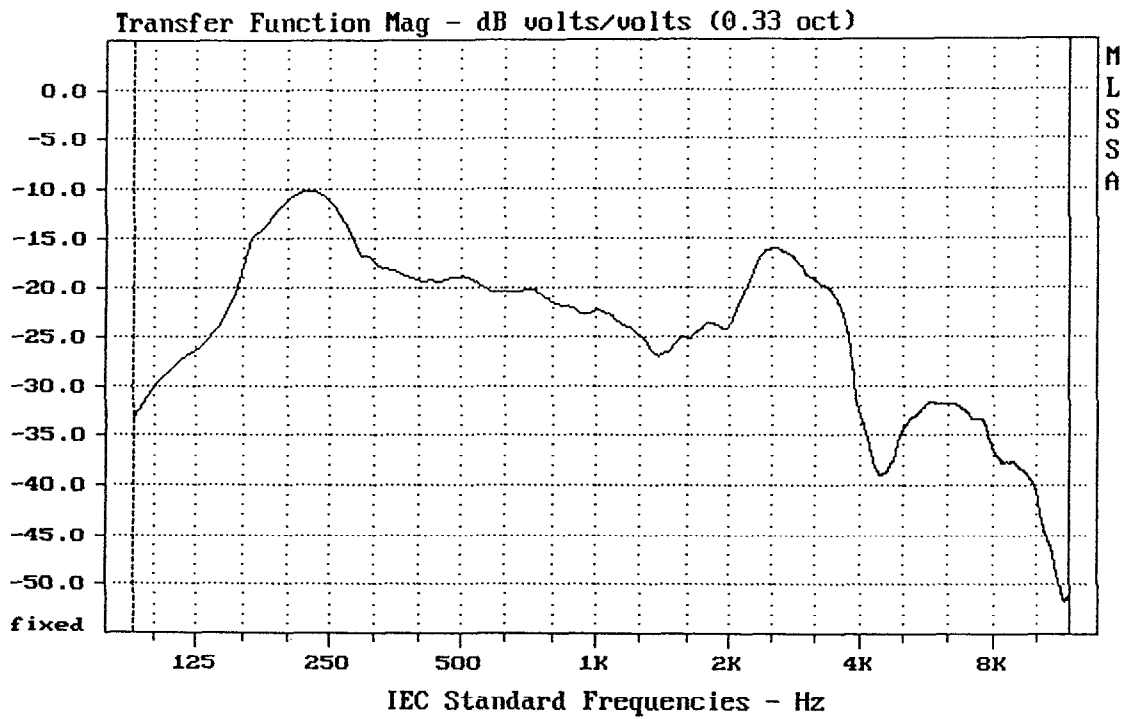


Loudspeaker Name: SAFE BI-DI 6T
 Transformer Tapping: 6W
 Mounting: Half Space
 Backbox & Grille: As Supplied

Principal Axis Located at: 0 degrees

Parameter	Frequency (Hz)							dB	dBA
	125	250	500	1K	2K	4K	8K		
Axial Q	1.3	2.6	2.3	0.9	1.3	1.2	1.0		
Di (dB)	1.3	4.1	3.5	-0.5	1.2	0.8	-0.1		
Angle of direction of maximum SPL	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx		
Horizontal Angular Dispersion (deg.)	157	138	115	118	106	102	113		
Vertical Angular Dispersion (deg.)	149	156	170	135	121	131	143		
Impedance (Ohms)	1617	1521	1288	1310	1419	1680	2481		
Sensitivity (dB@1W,1m) 125Hz - 8kHz Apportioned Power	81	90	84	81	84	81	72	85	81
Sensitivity (dB@1W,1m) 250Hz - 4kHz								85	82
Sensitivity (dB@1W,1m)Speech Shaped								87	81

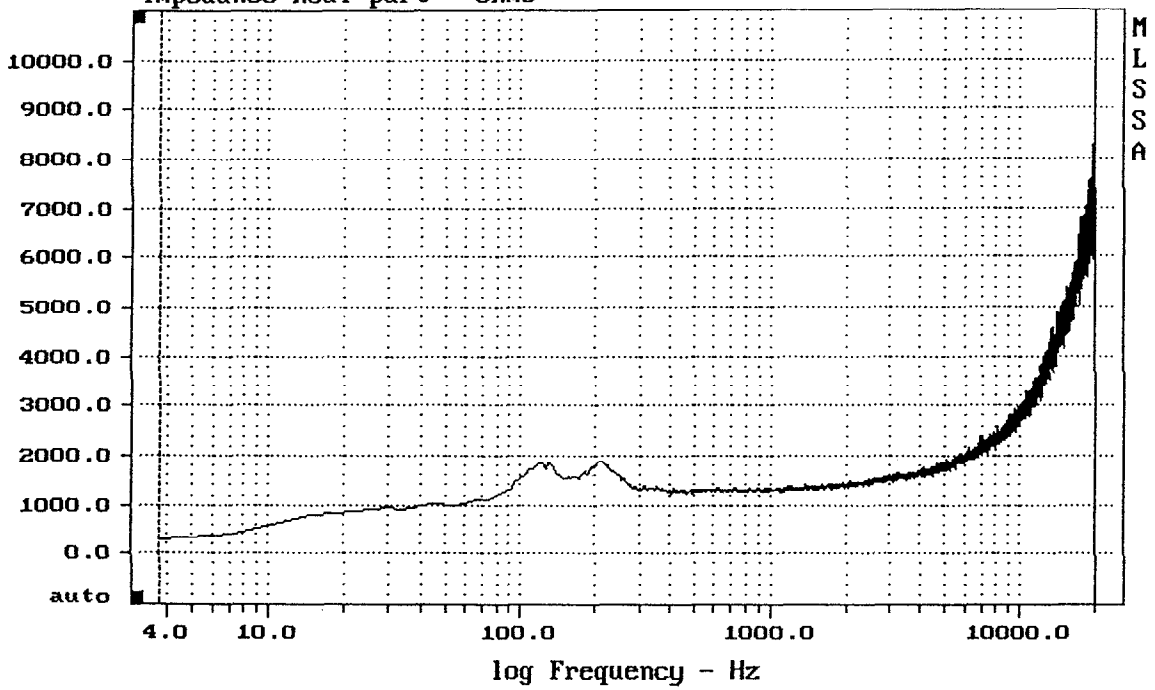




mean: -27.71, rms: -24.15, std: 6.55, max: -10.20, min: -51.68

SAFE BI-DI 6T @ 6W Tapping

File: A:\IMP.FRQ 8-29-100 10:17 AM (equalized)
Impedance Real part - ohms



mean: 3320, rms: 3752, std: 1747, max: 9518, min: 299.8

SAFE BI-DI 6T @ 6W Tapping

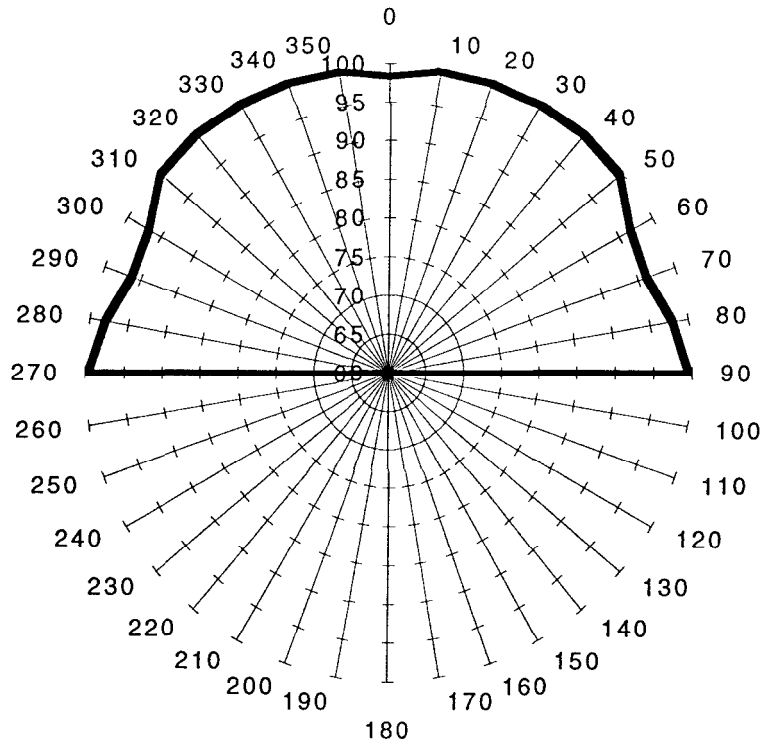
8-30-100 5:36 PM

MLSSA: Frequency Domain

Speaker: **SAFE BI-DI 6T**
Mounting: **Half Space**

Tapping: **6W**
Backbox/Grille: **As Supplied**

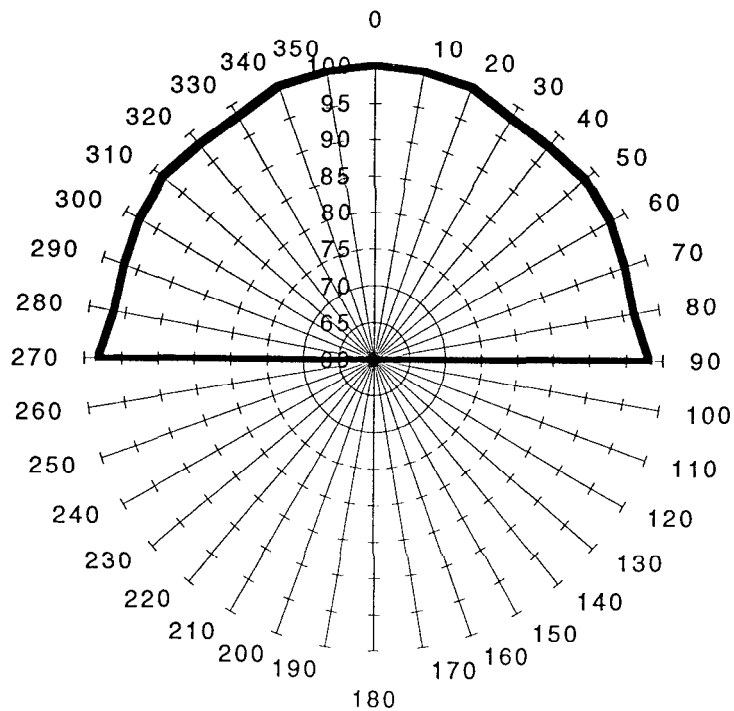
Horizontal ; 125 Hz.



Speaker: **SAFE BI-DI 6T**
Mounting: **Half Space**

Tapping: **6W**
Backbox/Grille: **As Supplied**

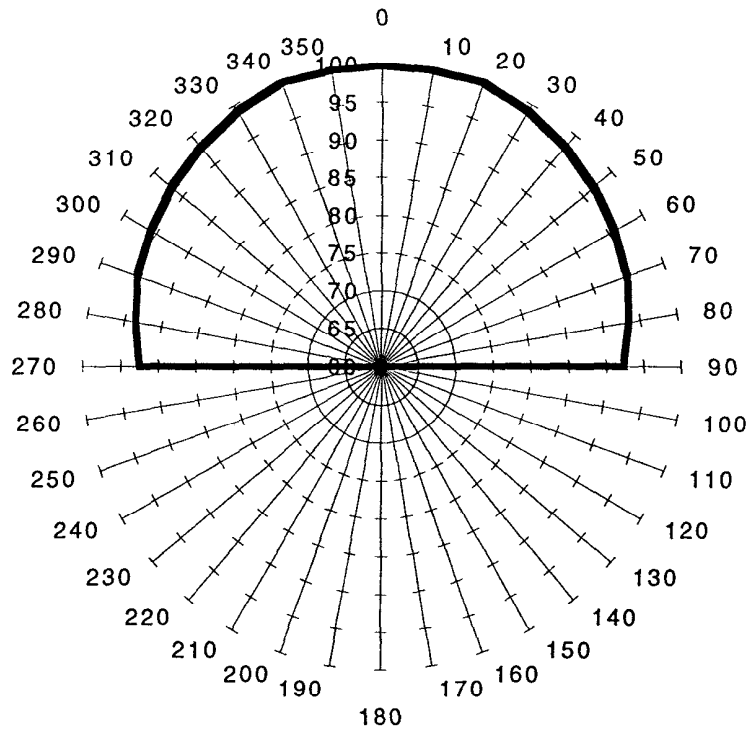
Horizontal ; 250 Hz.



Speaker: **SAFE BI-DI 6T**
Mounting: **Half Space**

Tapping: **6W**
Backbox/Grille: **As Supplied**

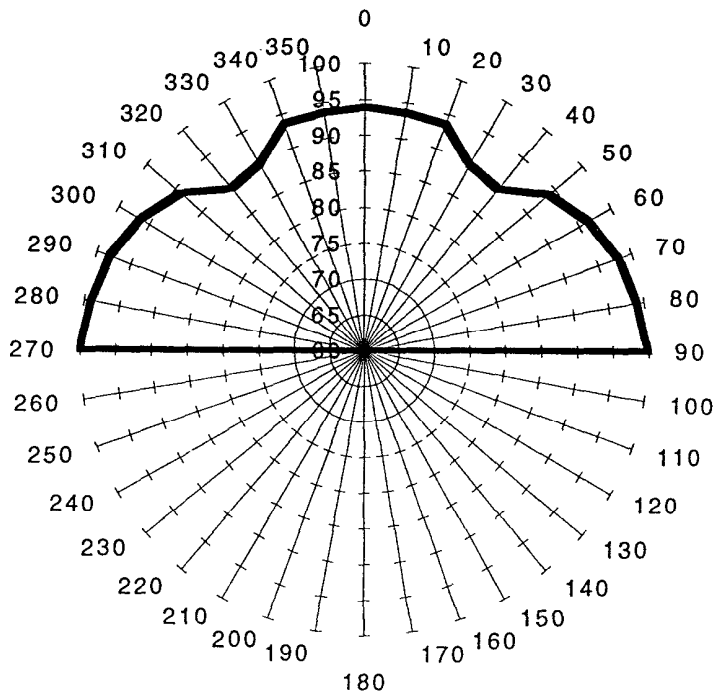
Horizontal ; 500 Hz.



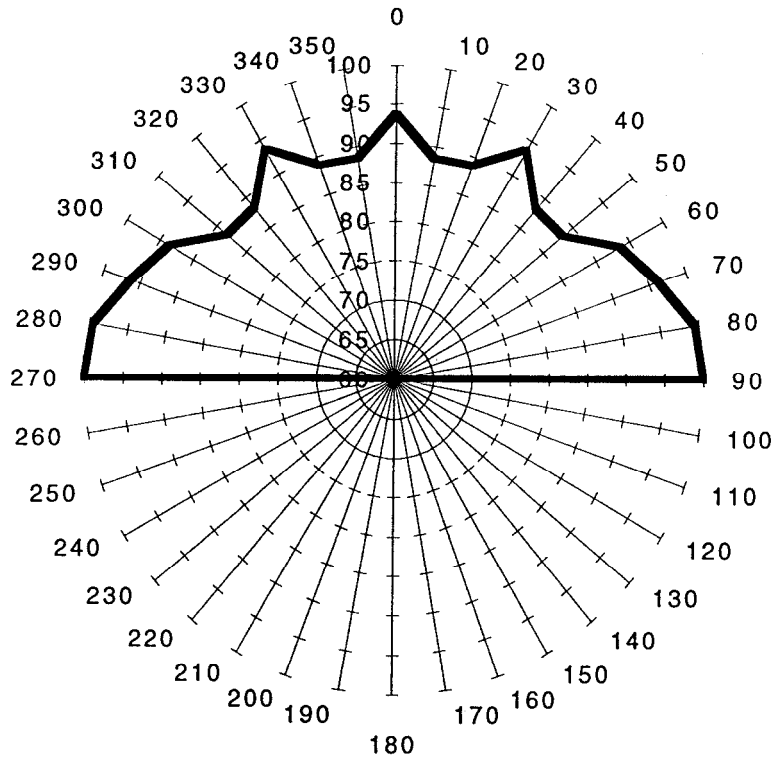
Speaker: **SAFE BI-DI 6T**
Mounting: **Half Space**

Tapping: **6W**
Backbox/Grille: **As Supplied**

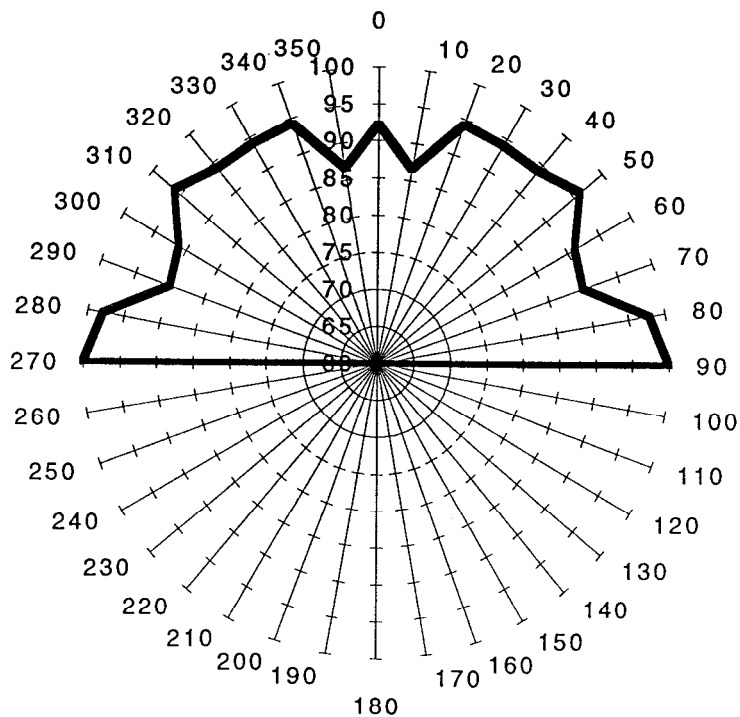
Horizontal ; 1KHz.



Speaker: **SAFE BI-DI 6T** Tapping: **6W**
Mounting: **Half Space** Backbox/Grille: **As Supplied**
Horizontal ; 2KHz.



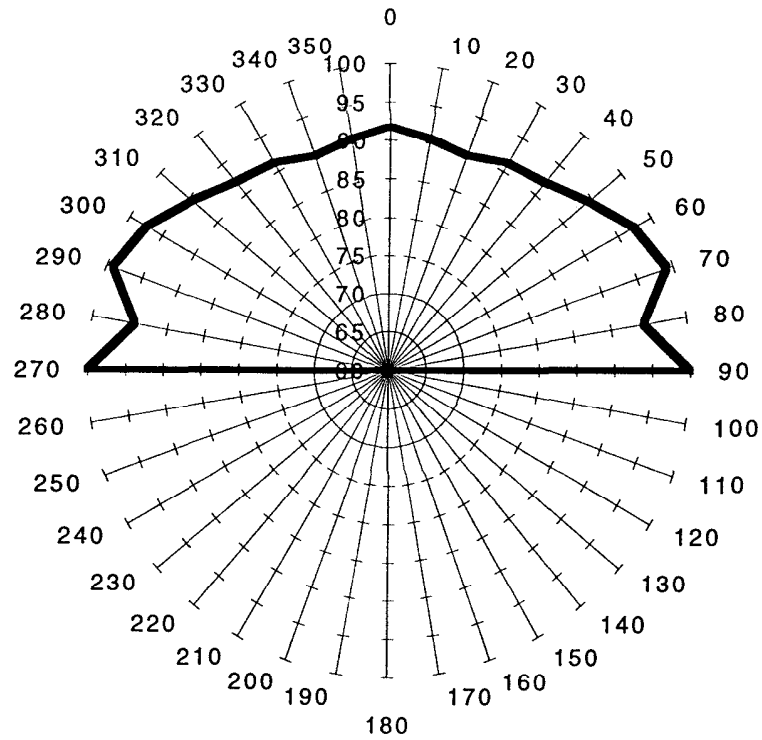
Speaker: **SAFE BI-DI 6T** Tapping: **6W**
Mounting: **Half Space** Backbox/Grille: **As Supplied**
Horizontal ; 4KHz.



Speaker: **SAFE BI-DI 6T**
Mounting: **Half Space**

Tapping: **6W**
Backbox/Grille: **As Supplied** Tapping:
Backbox/Grille:

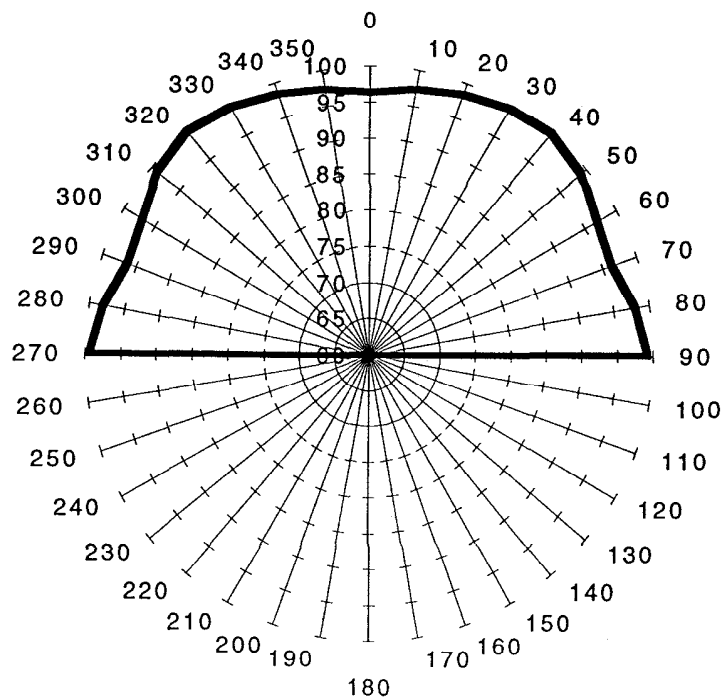
Horizontal ; 8KHz.



Speaker: **SAFE BI-DI 6T**
Mounting: **Half Space**

Tapping: **6W**
Backbox/Grille: **As Supplied** Tapping:
Backbox/Grille:

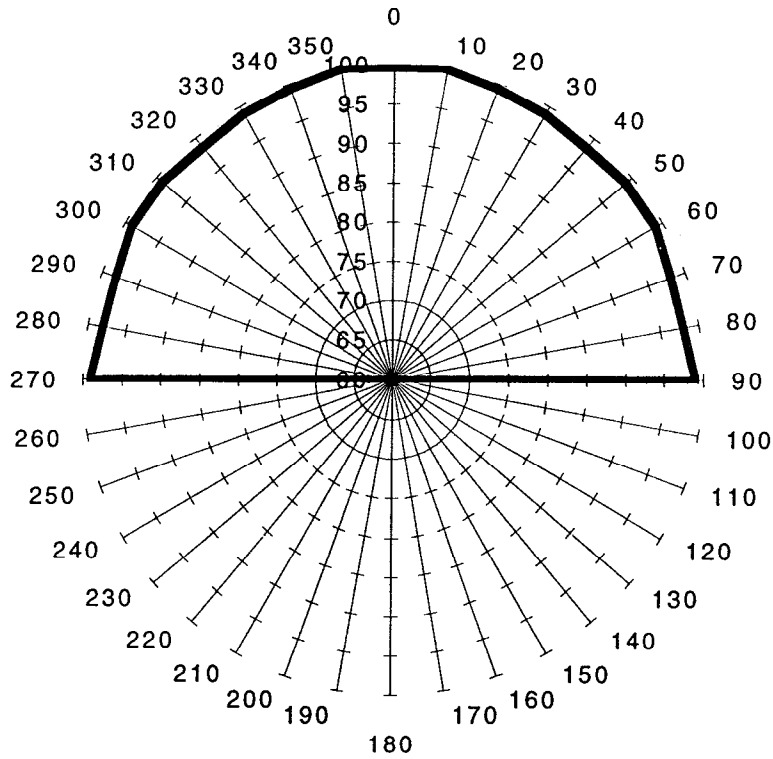
Vertical ; 125 Hz.



Speaker: **SAFE BI-DI 6T**
Mounting: **Half Space**

Tapping: **6W**
Backbox/Grille: **As Supplied** Tapping:
Backbox/Grille:

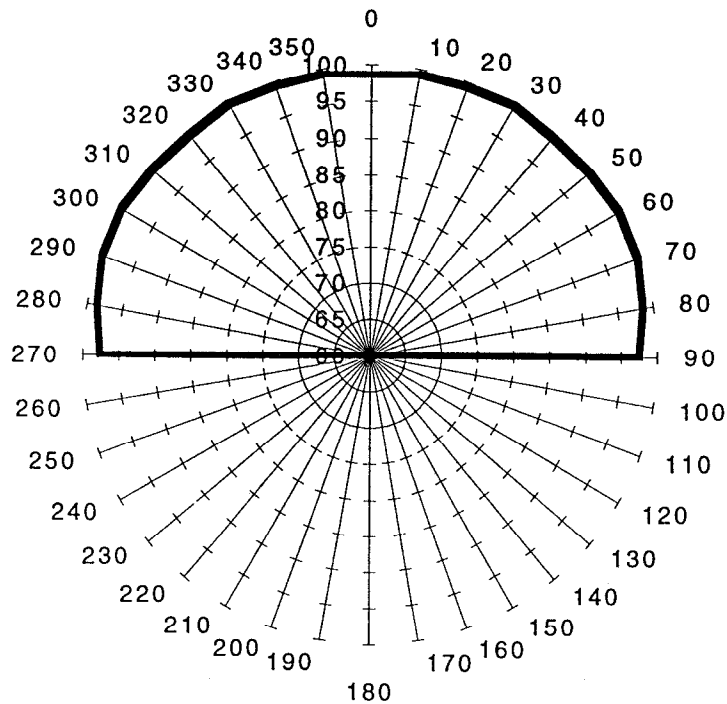
Vertical ; 250 Hz.



Speaker: **SAFE BI-DI 6T**
Mounting: **Half Space**

Tapping: **6W**
Backbox/Grille: **As Supplied** Tapping:
Backbox/Grille:

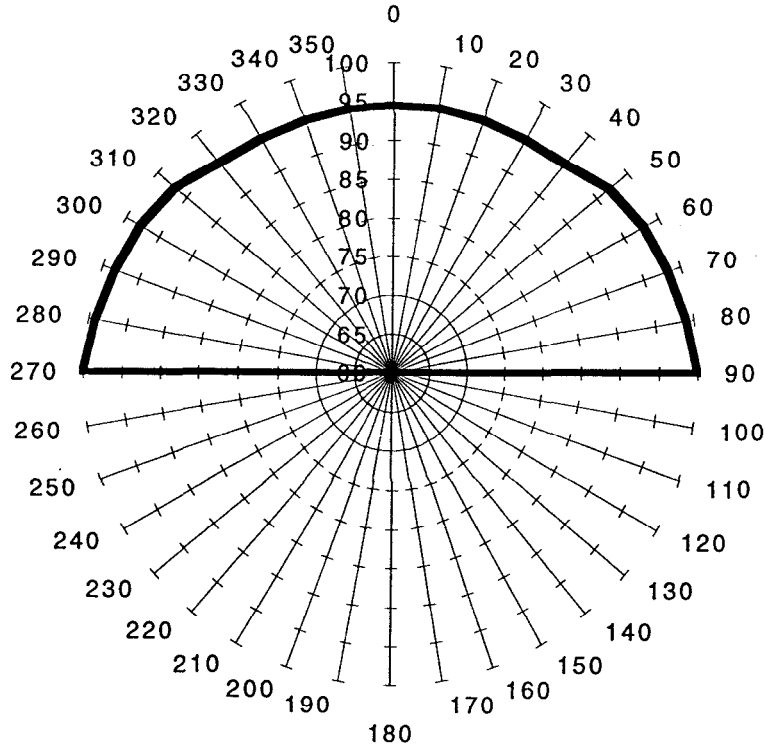
Vertical ; 500 Hz.



Speaker: **SAFE BI-DI 6T**
Mounting: **Half Space**

Tapping: **6W**
Backbox/Grille: **As Supplied**

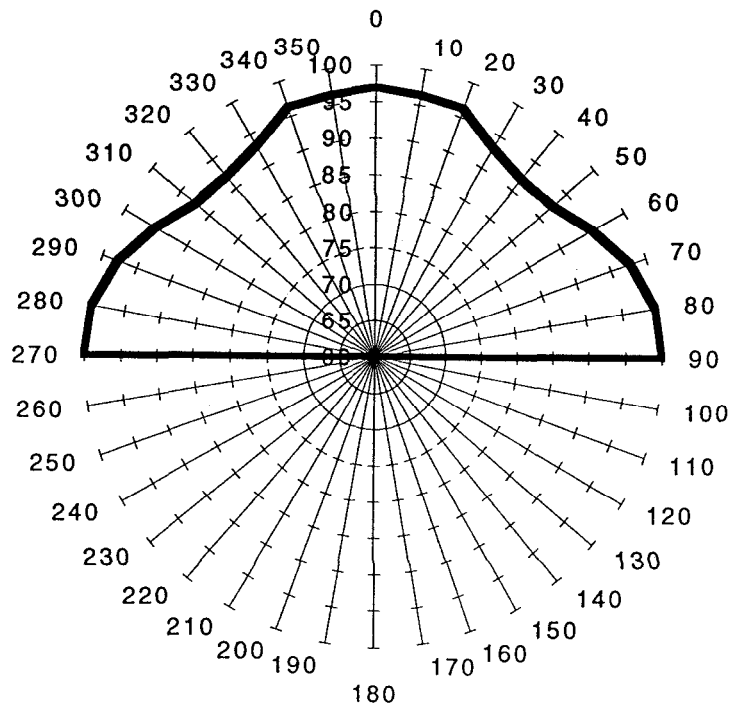
Vertical ; 1KHz.



Speaker: **SAFE BI-DI 6T**
Mounting: **Half Space**

Tapping: **6W**
Backbox/Grille: **As Supplied**

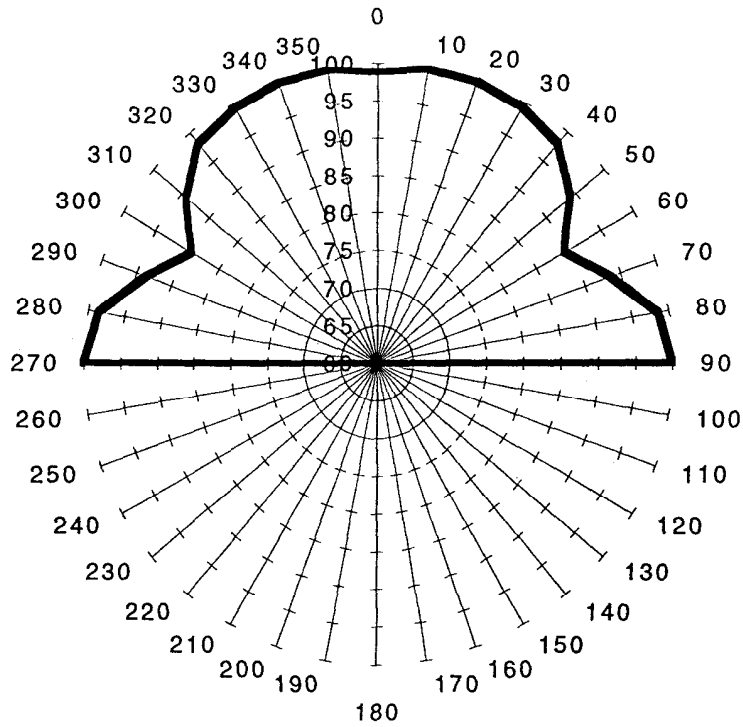
Vertical ; 2KHz.



Speaker: **SAFE BI-DI 6T**
Mounting: **Half Space**

Tapping: **6W**
Backbox/Grille: **As Supplied**

Vertical ; 4KHz.



Speaker: **SAFE BI-DI 6T**
Mounting: **Half Space**

Tapping: **6W**
Backbox/Grille: **As Supplied**

Vertical ; 8KHz.

