



## **4.0 MH660iE SYSTEM**

### **4.1 MH660iE Architectural Specifications**

The two-way midrange/high frequency loudspeaker system shall incorporate a 10 inch mid frequency cone transducer and a compression driver mounted to a constant directivity high frequency horn. The system shall meet the following performance criteria: Frequency Response of 200 Hz to 19 kHz  $\pm$  3 dB; Axial Sensitivity (1W @ 1m) of 109 dB SPL; 100 hour sine wave Power Handling of 175 Watts (MF), 80 Watts (HF); Horizontal coverage of 65° between -6 dB points; Vertical coverage of 45° between -6 dB points.

The system's mid frequency driver shall be loaded into a constant horizontal coverage horn constructed of 3 mm cross-grain-laminated birch hardwood. The horn flare shall be reinforced with high density polyurethane foam and shall incorporate a center displacement plug. The high frequency driver shall utilize a titanium diaphragm.

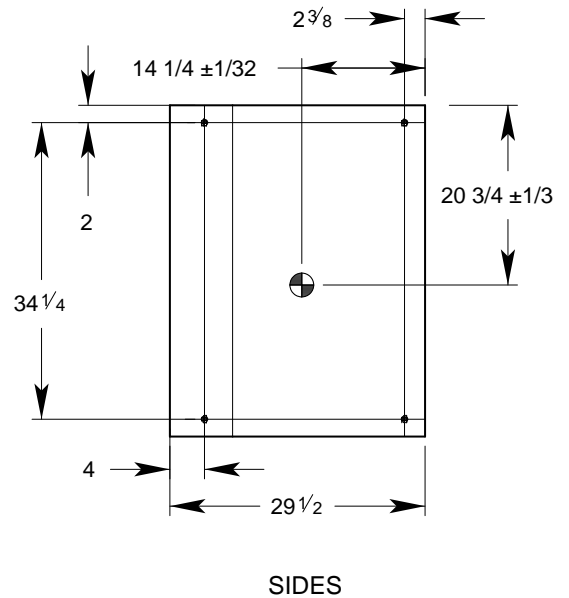
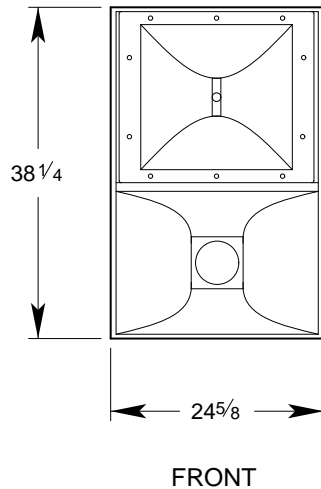
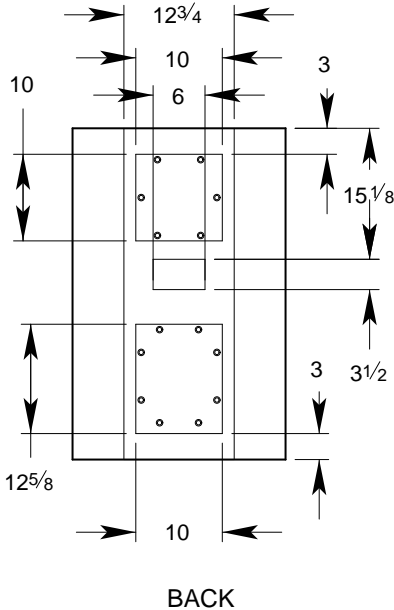
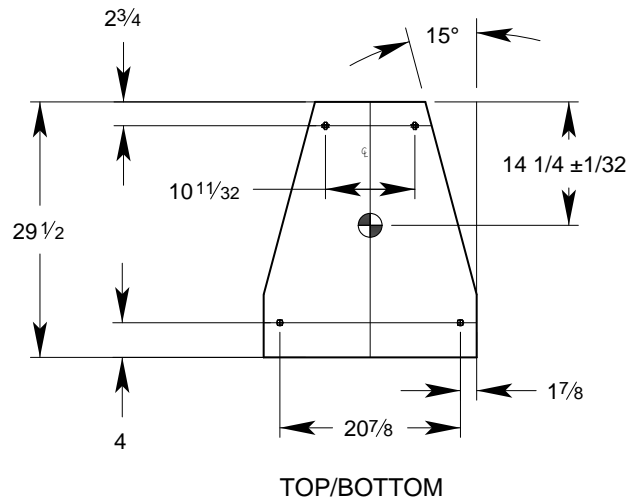
The trapezoidal enclosure shall be constructed of void-free cross-grain-laminated birch plywood and shall have internal bracing. It shall be finished in a black catalyzed polyurethane coating. All external hardware shall be stainless steel or shall be coated to protect against rust and corrosion. The front of the system shall be covered with a protective perforated steel grill assembly coated with vinyl to dampen resonance. Hanging fixture attachment points shall be installed in the top and bottom of the enclosure and mating clips shall be included with the system. Cabinet sides shall be tapered in such a way as to simplify construction of arrays.

The two-way midrange/high frequency loudspeaker system shall be the EAW model MH660iE.



## 4.2 MECHANICAL DRAWINGS

### 4.2.2 MH660iE



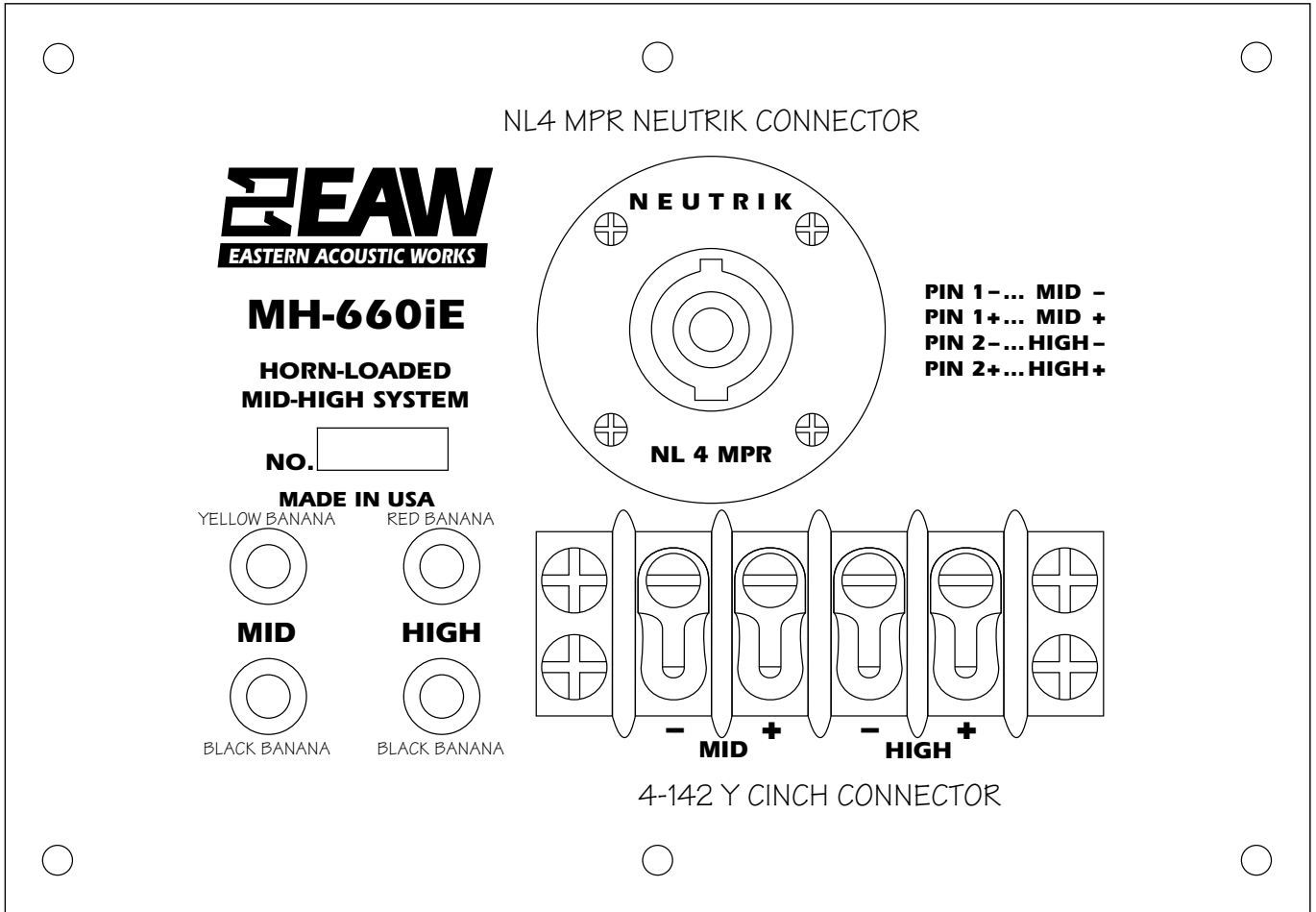
⊕ CENTER OF BALANCE

● MOUNTING POINTS  
3/8"-16 NUTS WELDED TO A  
2" x 2" STEEL L-PLATE



### 4.3 INPUT PANEL DRAWINGS

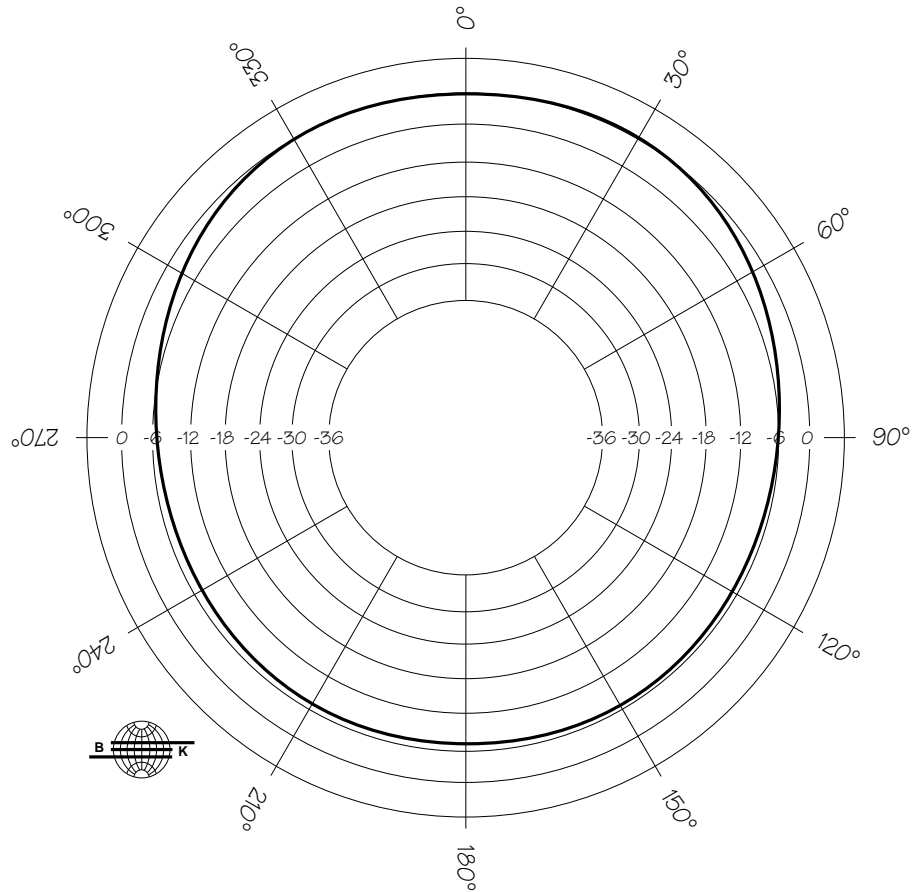
#### 4.3.1 MH660iE Bi-amp Configuration



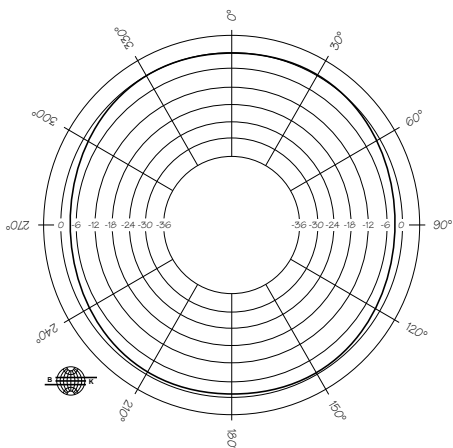


### 4.5 MH660iE POLAR RESPONSE

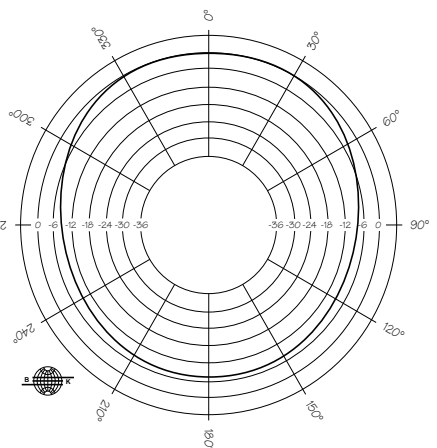
- 4.5.1 Horizontal Polar Data
- 4.5.1.1 Octave Band 125 Hz



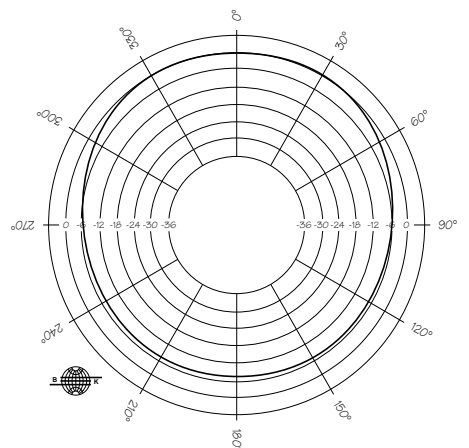
MH660 Horizontal Polar Data  
Octave Band 125 Hz



MH660 Horizontal Polar Data  
1/3 Octave Band 100 Hz



MH660 Horizontal Polar Data  
1/3 Octave Band 125 Hz

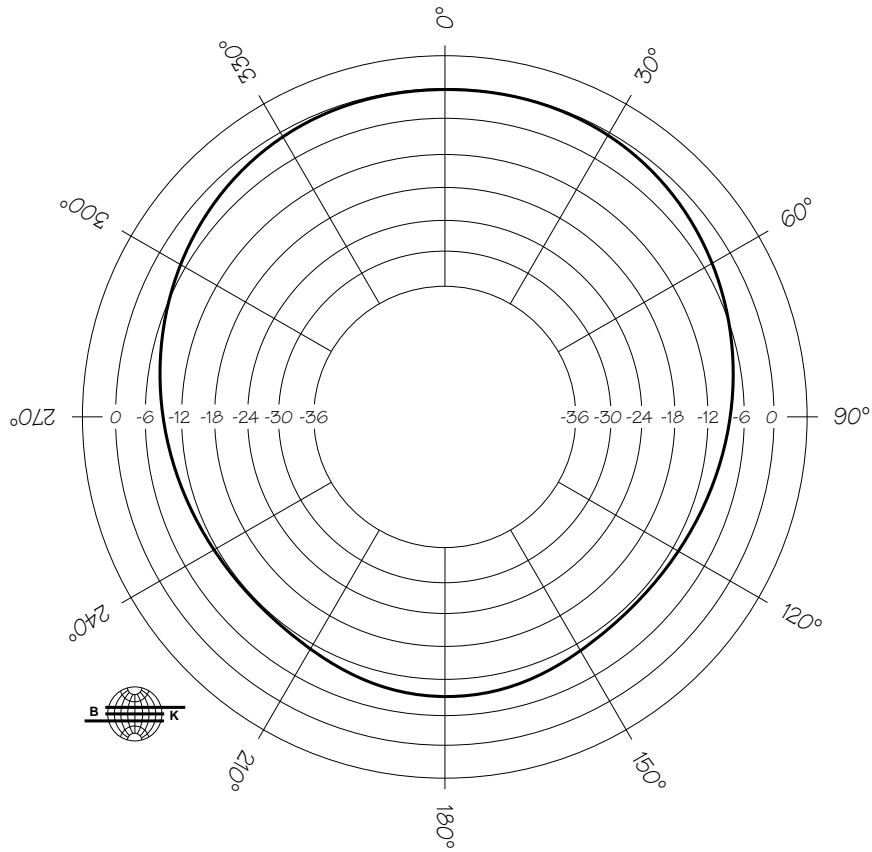


MH660 Horizontal Polar Data  
1/3 Octave Band 160 Hz

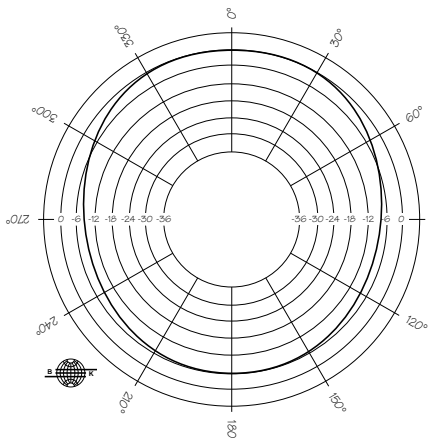


### 4.5 MH660iE POLAR RESPONSE

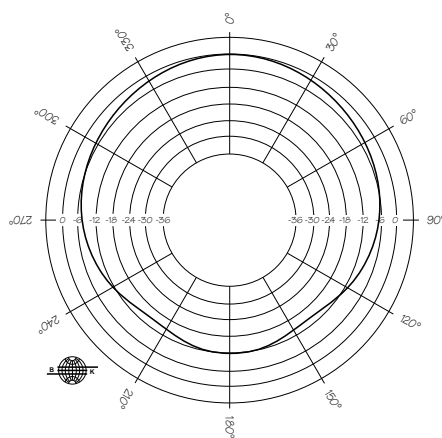
- 4.5.1 Horizontal Polar Data
- 4.5.1.2 Octave Band 250 Hz



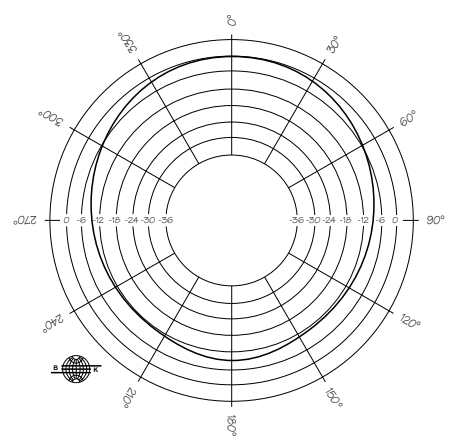
MH660 Horizontal Polar Data  
Octave Band 250 Hz



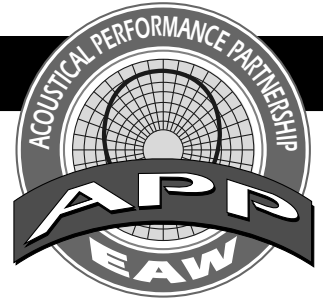
MH660 Horizontal Polar Data  
1/3 Octave Band 200 Hz



MH660 Horizontal Polar Data  
1/3 Octave Band 250 Hz

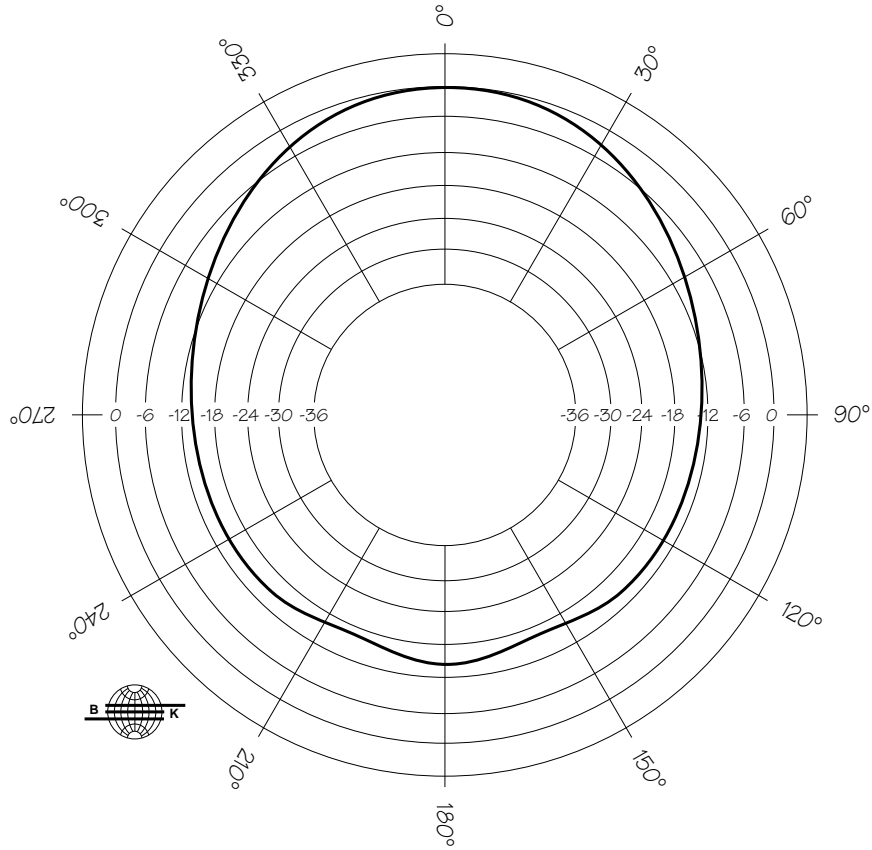


MH660 Horizontal Polar Data  
1/3 Octave Band 315 Hz

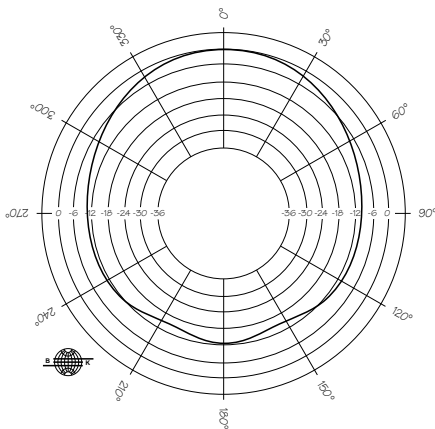


### 4.5 MH660iE POLAR RESPONSE

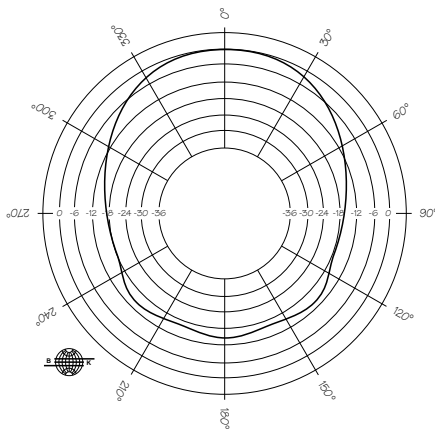
- 4.5.1 Horizontal Polar Data
- 4.5.1.3 Octave Band 500 Hz



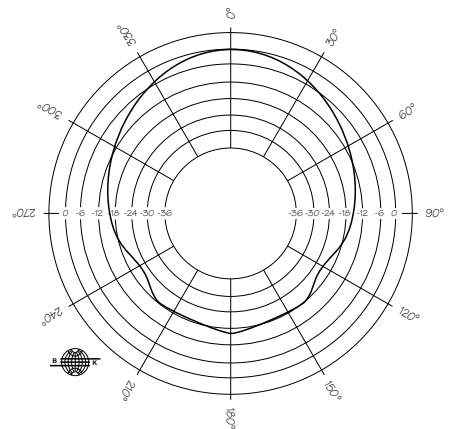
MH660 Horizontal Polar Data  
Octave Band 500 Hz



MH660 Horizontal Polar Data  
1/3 Octave Band 400 Hz



MH660 Horizontal Polar Data  
1/3 Octave Band 500 Hz

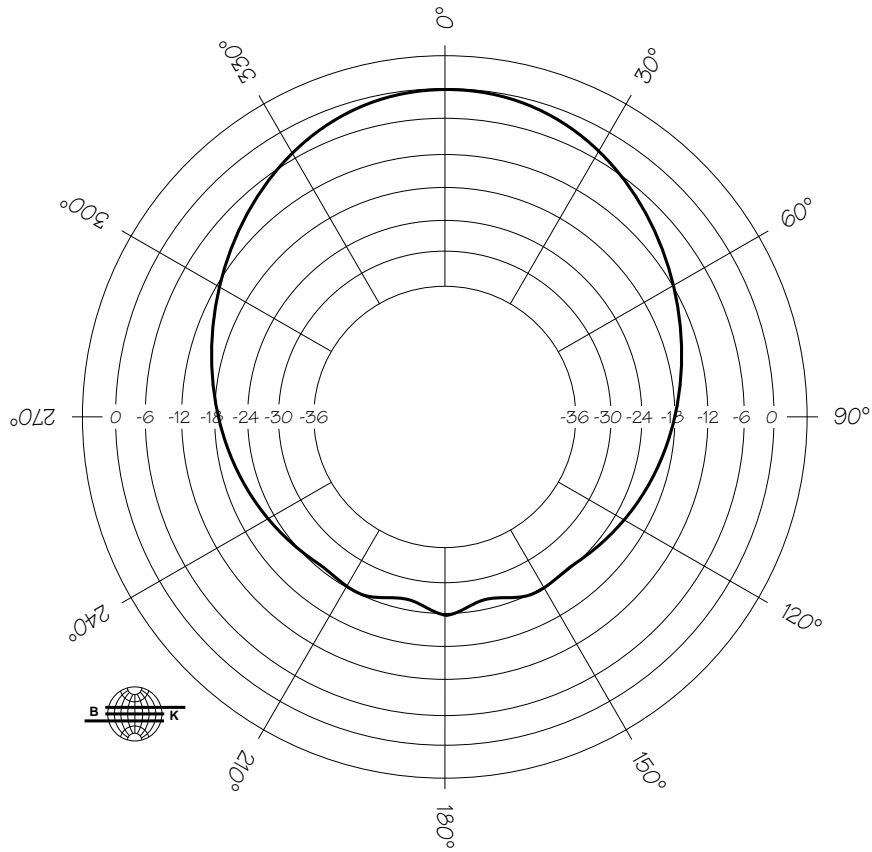


MH660 Horizontal Polar Data  
1/3 Octave Band 630 Hz

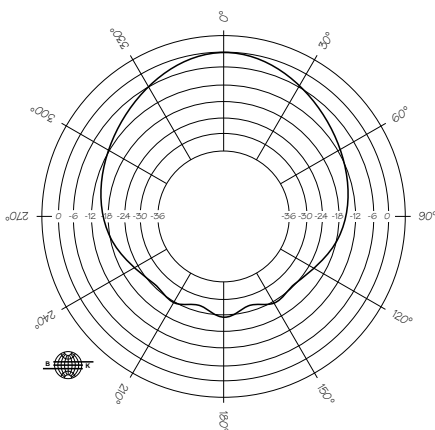


### 4.5 MH660iE POLAR RESPONSE

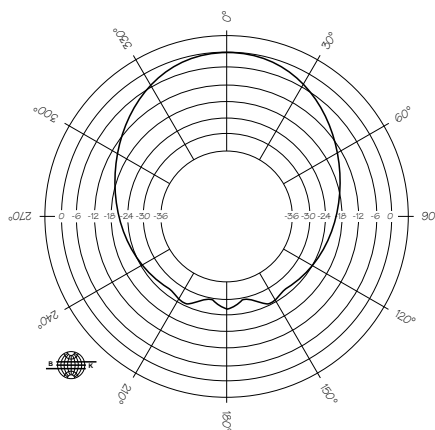
- 4.5.1 Horizontal Polar Data
- 4.5.1.4 Octave Band 1,000 Hz



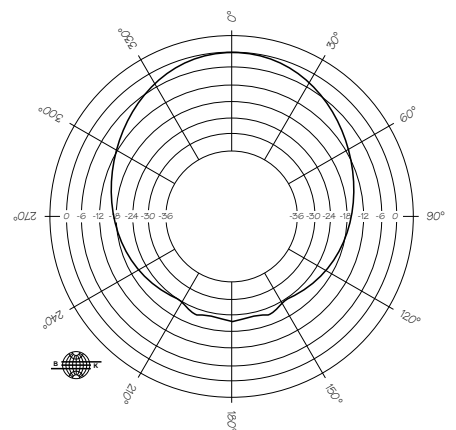
MH660 Horizontal Polar Data  
Octave Band 1000 Hz



MH660 Horizontal Polar Data  
1/3 Octave Band 800 Hz



MH660 Horizontal Polar Data  
1/3 Octave Band 1000 Hz

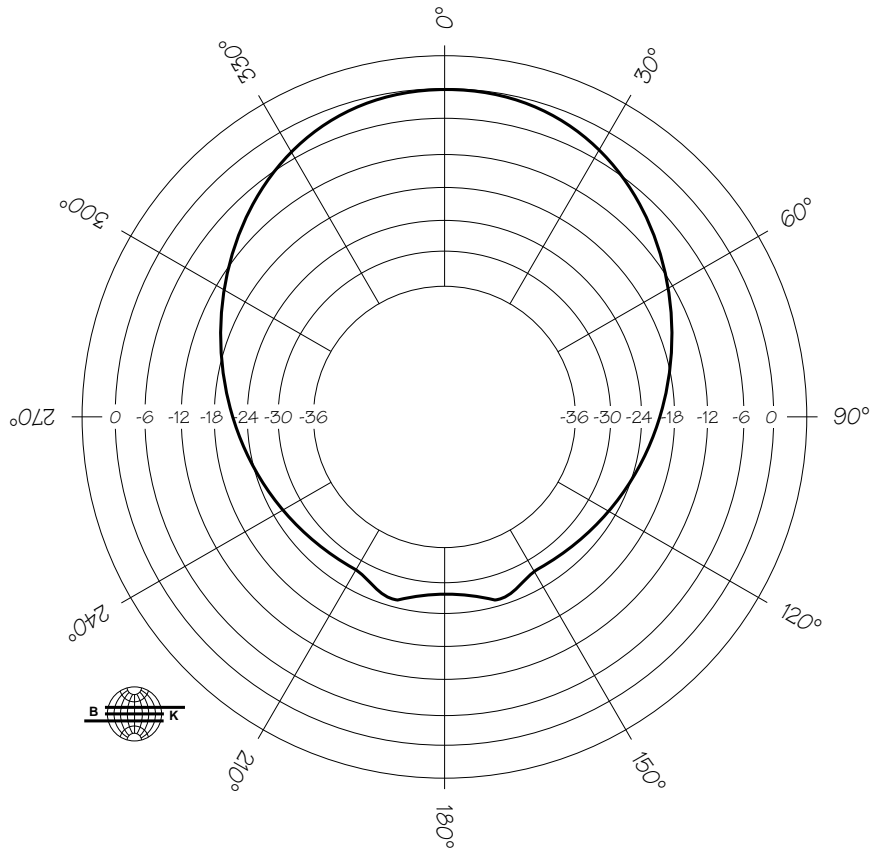


MH660 Horizontal Polar Data  
1/3 Octave Band 1250 Hz

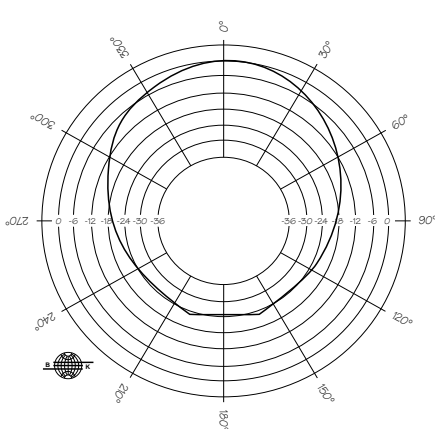


### 4.5 MH660iE POLAR RESPONSE

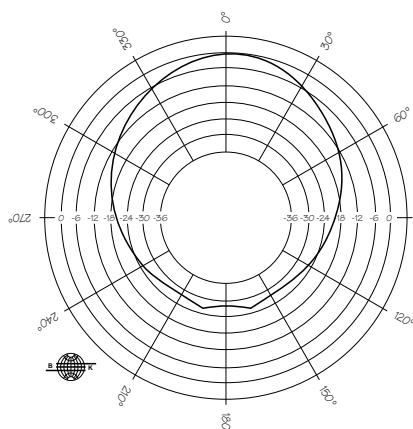
- 4.5.1 Horizontal Polar Data
- 4.5.1.5 Octave Band 2,000 Hz



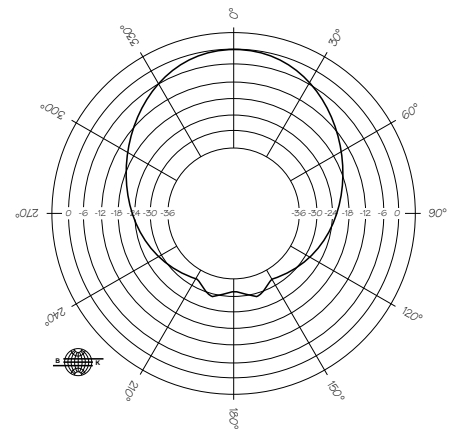
MH660 Horizontal Polar Data  
Octave Band 2000 Hz



MH660 Horizontal Polar Data  
1/3 Octave Band 1600 Hz



MH660 Horizontal Polar Data  
1/3 Octave Band 2000 Hz

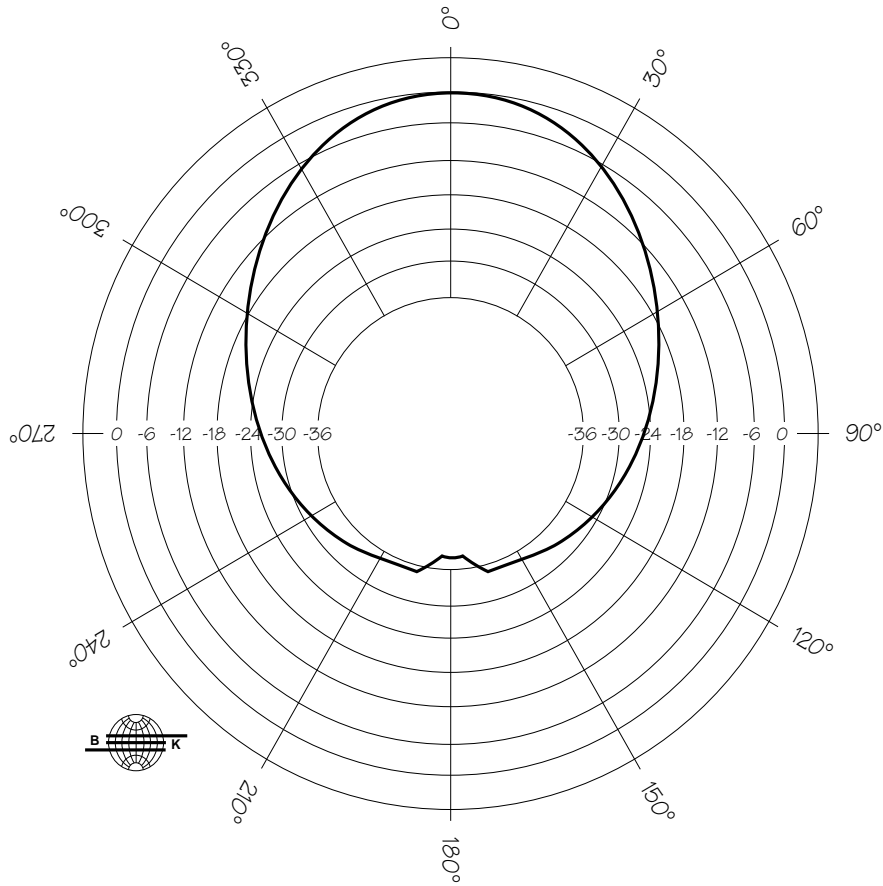


MH660 Horizontal Polar Data  
1/3 Octave Band 2500 Hz

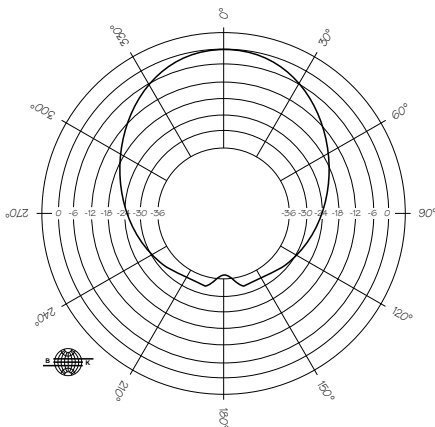


### 4.5 MH660iE POLAR RESPONSE

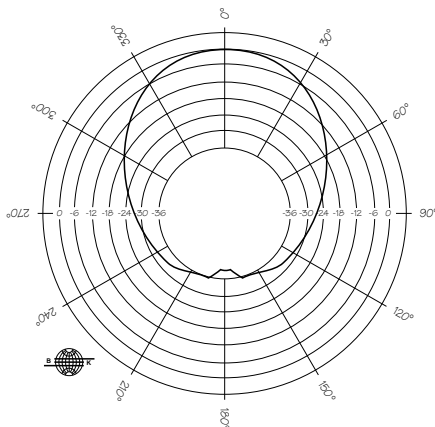
- 4.5.1 Horizontal Polar Data
- 4.5.1.6 Octave Band 4,000 Hz



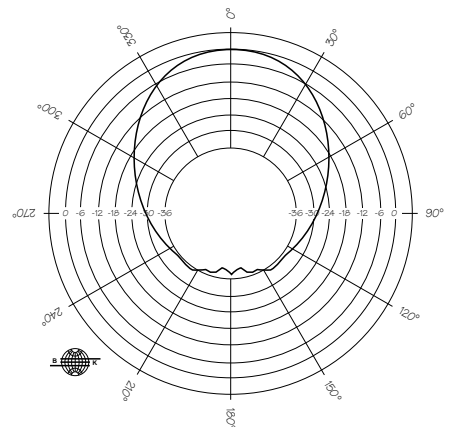
MH660 Horizontal Polar Data  
Octave Band 4000 Hz



MH660 Horizontal Polar Data  
1/3 Octave Band 3150 Hz



MH660 Horizontal Polar Data  
1/3 Octave Band 4000 Hz

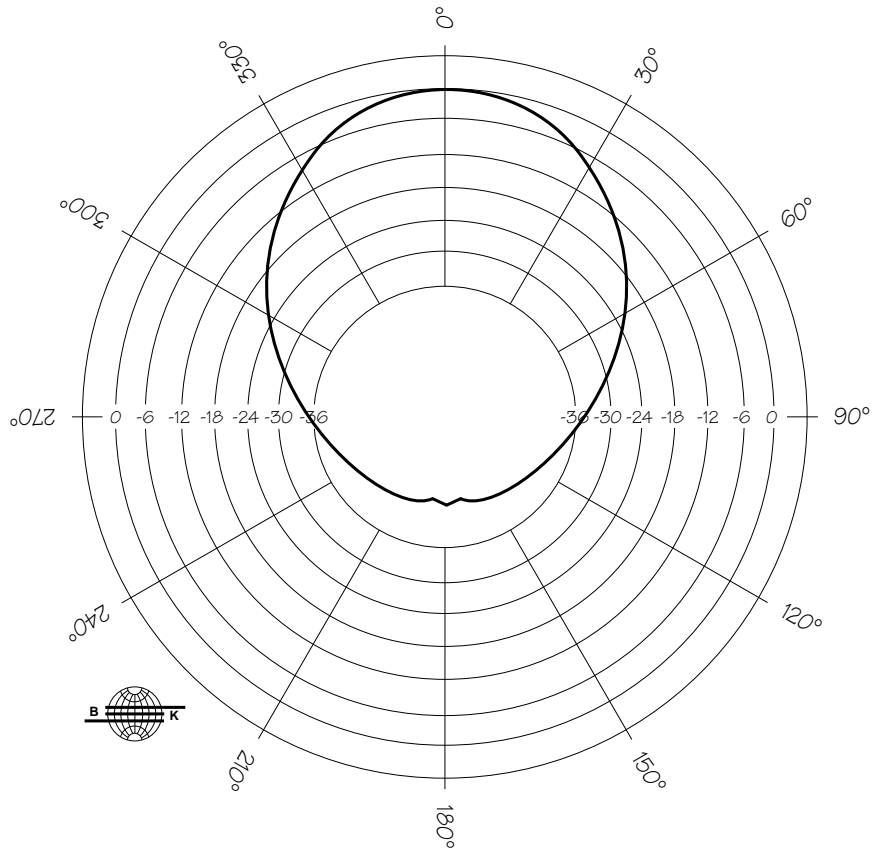


MH660 Horizontal Polar Data  
1/3 Octave Band 5000 Hz

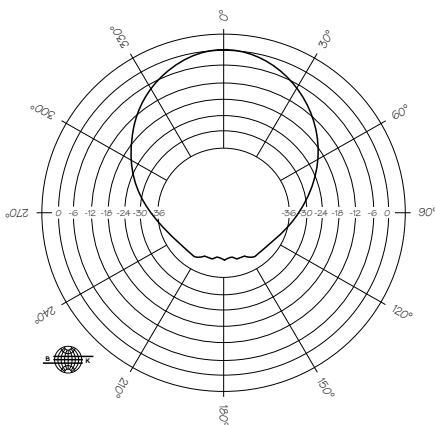


### 4.5 MH660iE POLAR RESPONSE

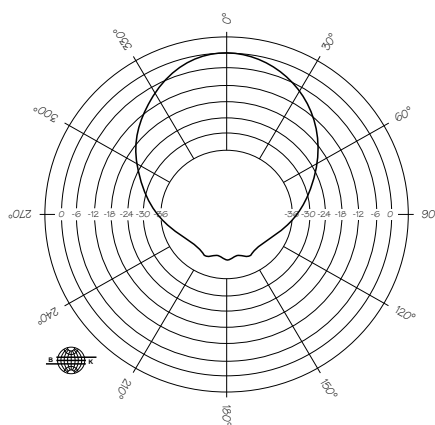
- 4.5.1 Horizontal Polar Data
- 4.5.1.7 Octave Band 8,000 Hz



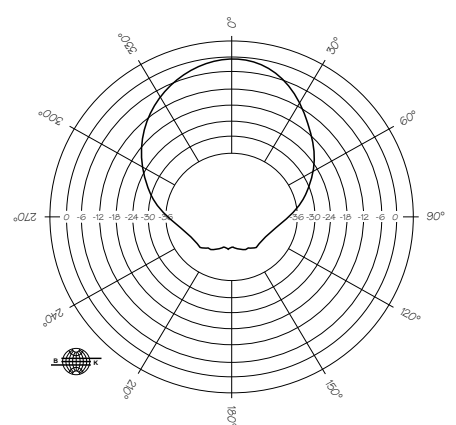
MH660 Horizontal Polar Data  
Octave Band 8000 Hz



MH660 Horizontal Polar Data  
1/3 Octave Band 6300 Hz



MH660 Horizontal Polar Data  
1/3 Octave Band 8000 Hz

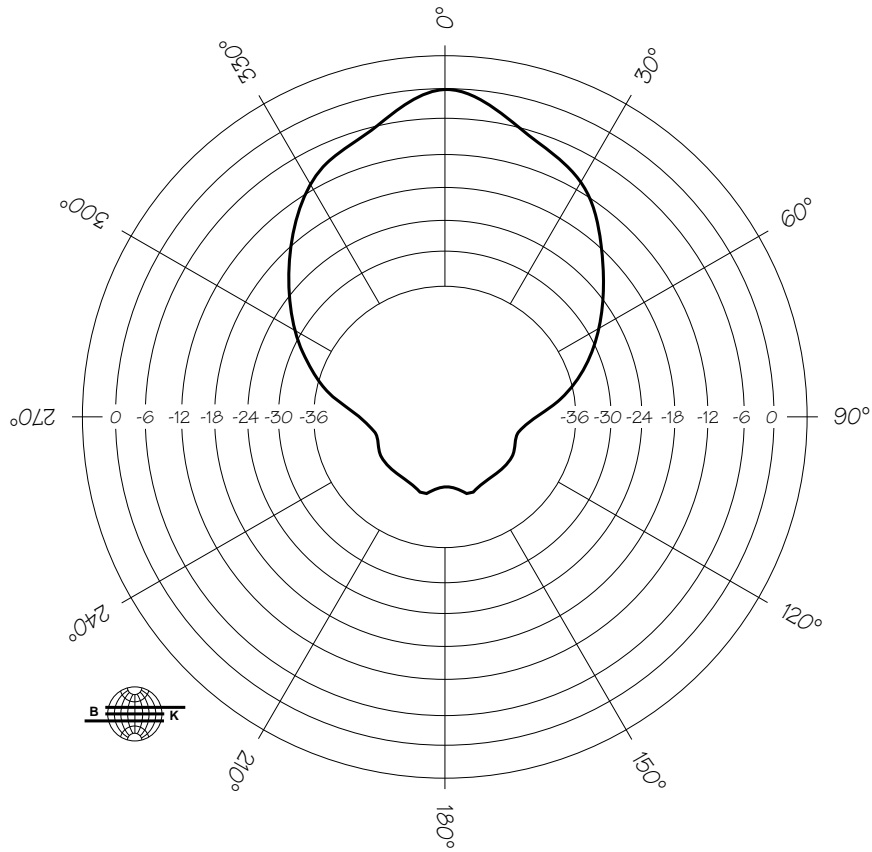


MH660 Horizontal Polar Data  
1/3 Octave Band 10000 Hz

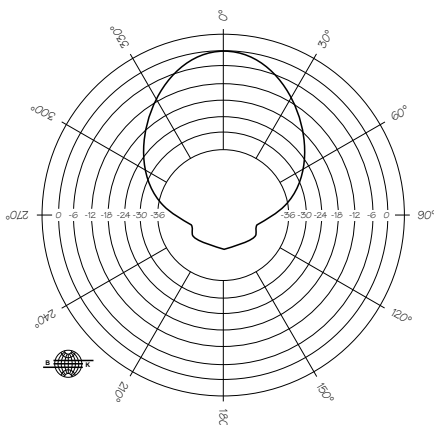


### 4.5 MH660iE POLAR RESPONSE

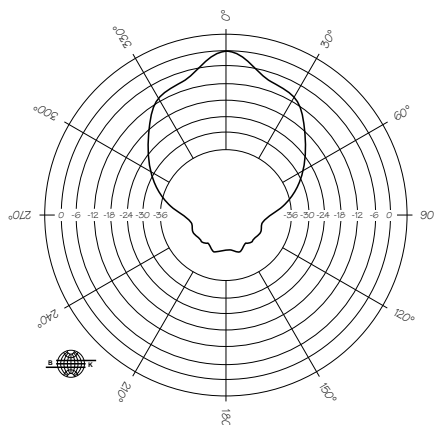
- 4.5.1 Horizontal Polar Data
- 4.5.1.8 Octave Band 16,000 Hz



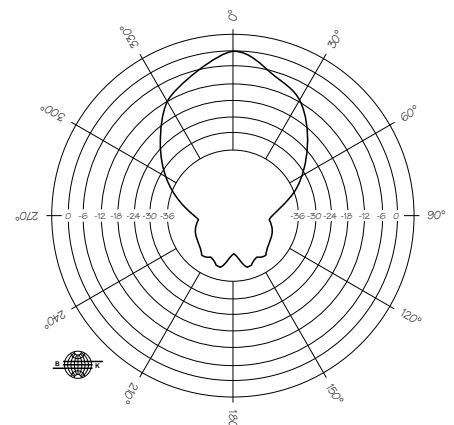
MH660 Horizontal Polar Data  
Octave Band 16000 Hz



MH660 Horizontal Polar Data  
1/3 Octave Band 12500 Hz



MH660 Horizontal Polar Data  
1/3 Octave Band 16000 Hz

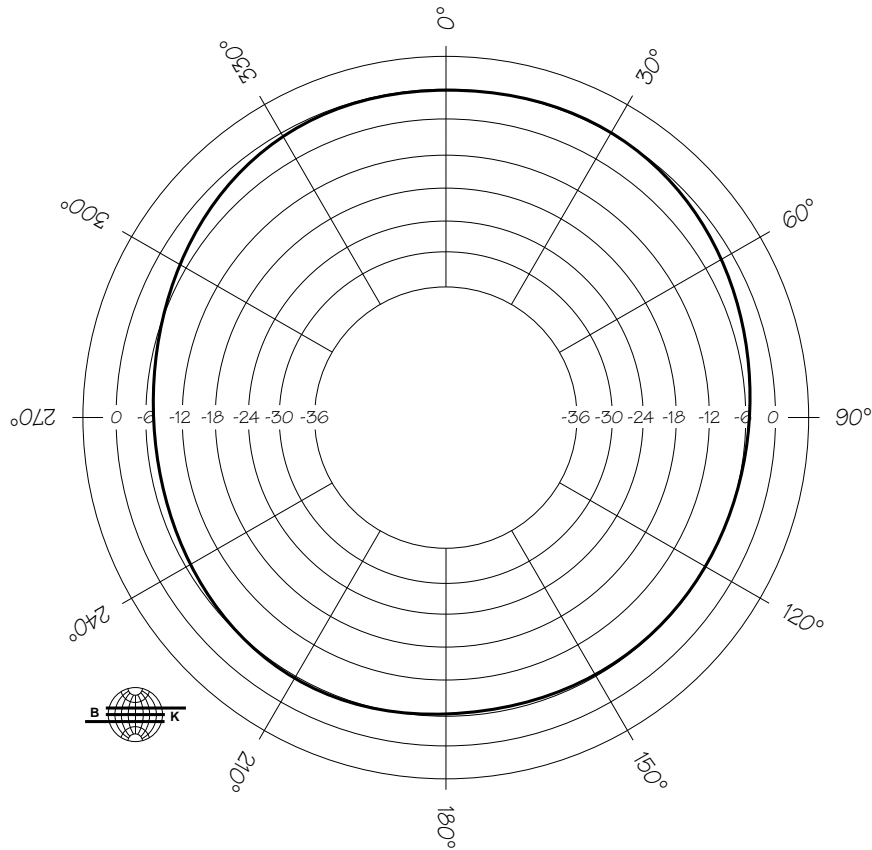


MH660 Horizontal Polar Data  
1/3 Octave Band 20000 Hz

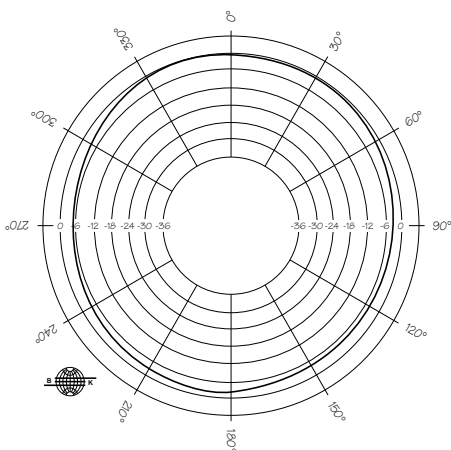


### 4.5 MH660iE POLAR RESPONSE

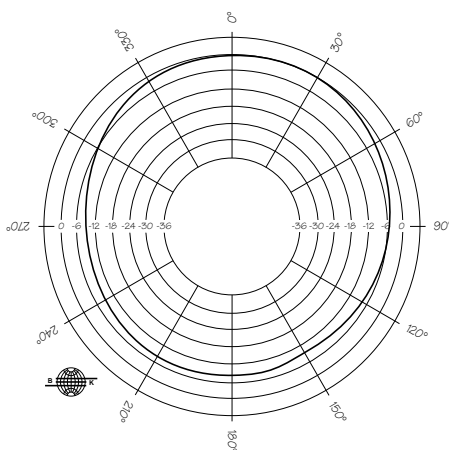
- 4.5.2 Vertical Polar Data
- 4.5.2.1 Octave Band 125 Hz



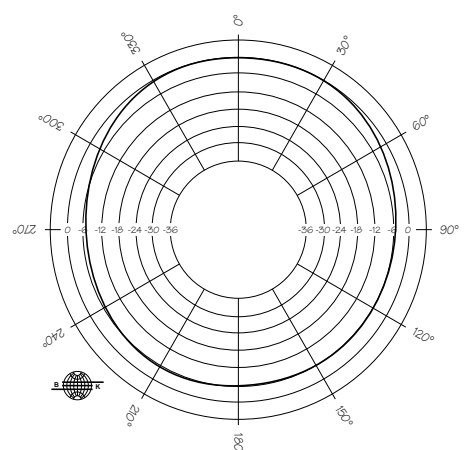
MH660 Vertical Polar Data  
Octave Band 125 Hz



MH660 Vertical Polar Data  
1/3 Octave Band 100 Hz



MH660 Vertical Polar Data  
1/3 Octave Band 125 Hz

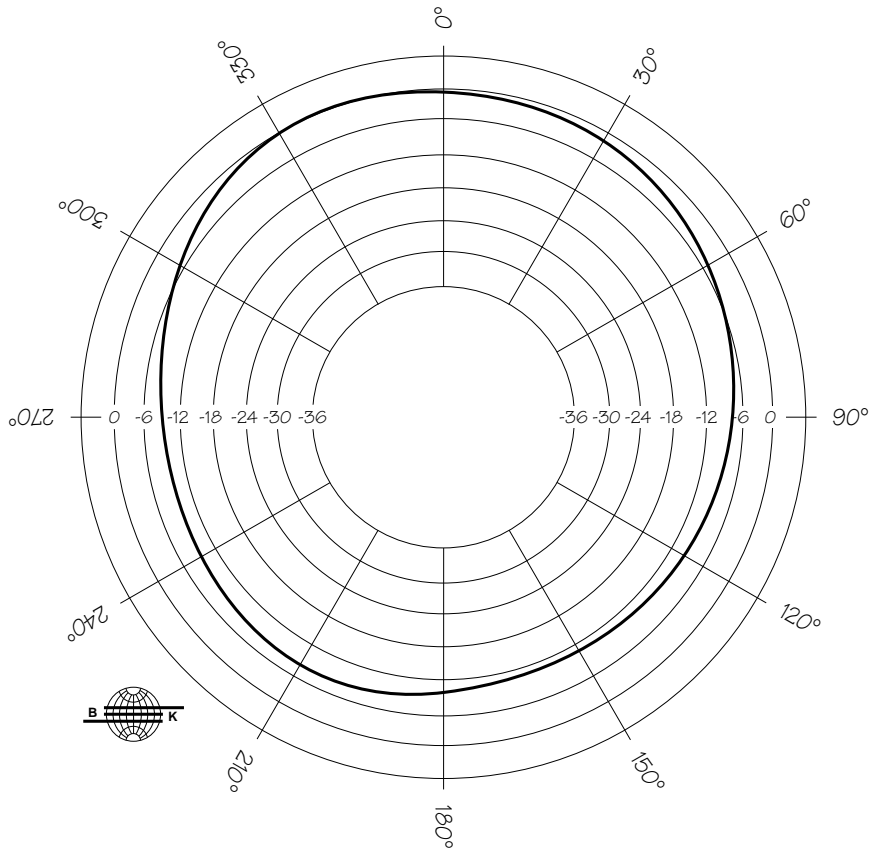


MH660 Vertical Polar Data  
1/3 Octave Band 160 Hz

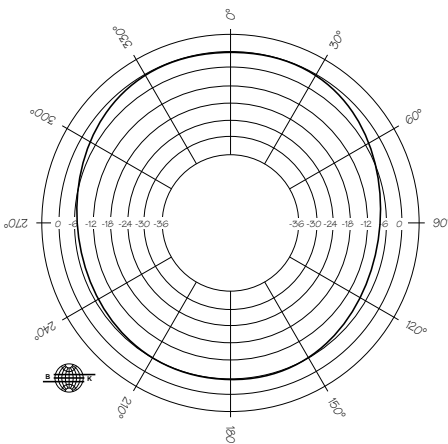


### 4.5 MH660iE POLAR RESPONSE

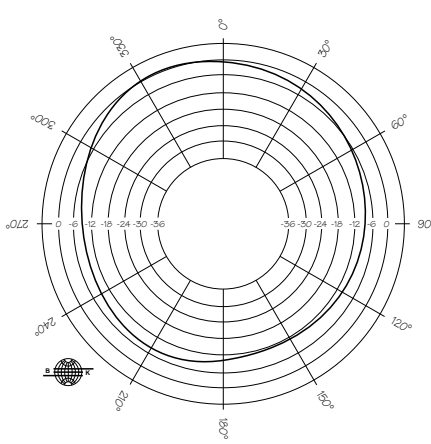
- 4.5.2 Vertical Polar Data
- 4.5.2.2 Octave Band 250 Hz



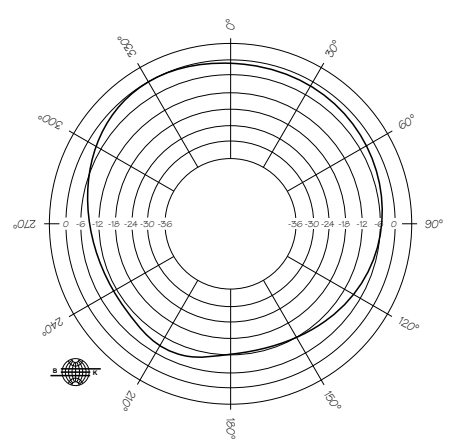
MH660 Vertical Polar Data  
Octave Band 250 Hz



JF560 Vertical Polar Data  
1/3 Octave Band 200 Hz



MH660 Vertical Polar Data  
1/3 Octave Band 250 Hz

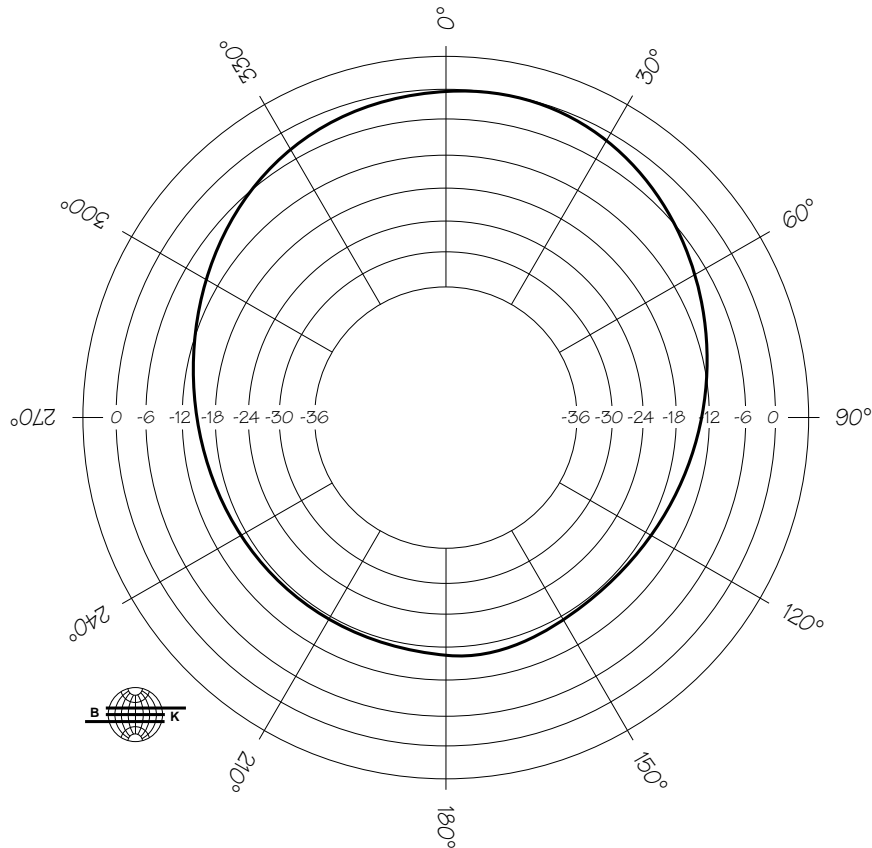


MH660 Vertical Polar Data  
1/3 Octave Band 315 Hz

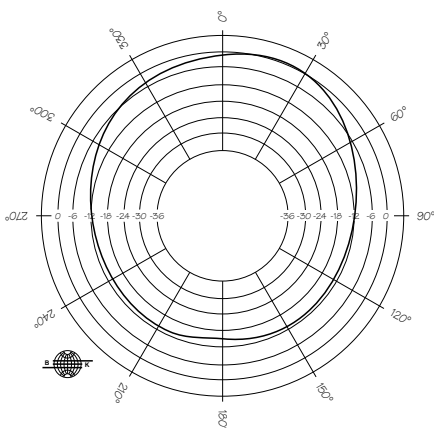


### 4.5 MH660iE POLAR RESPONSE

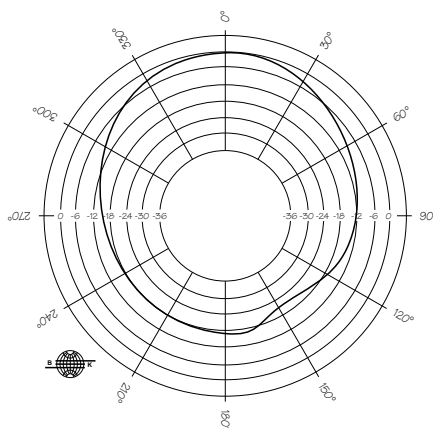
- 4.5.2 Vertical Polar Data
- 4.5.2.3 Octave Band 500 Hz



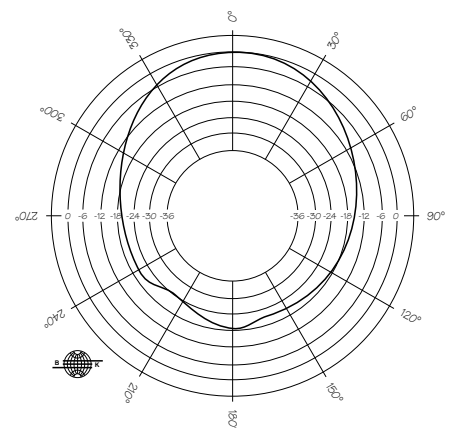
MH660 Vertical Polar Data  
Octave Band 500 Hz



MH660 Vertical Polar Data  
1/3 Octave Band 400 Hz



MH660 Vertical Polar Data  
1/3 Octave Band 500 Hz

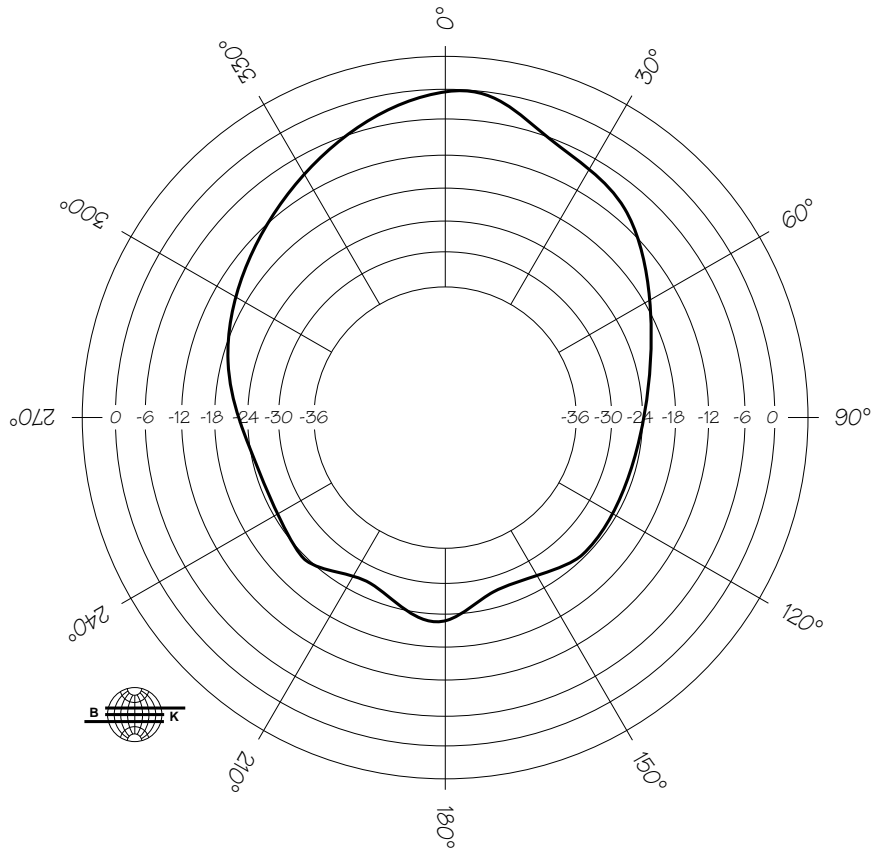


MH660 Vertical Polar Data  
1/3 Octave Band 630 Hz

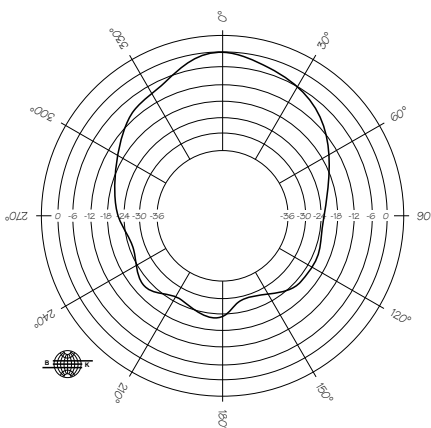


### 4.5 MH660iE POLAR RESPONSE

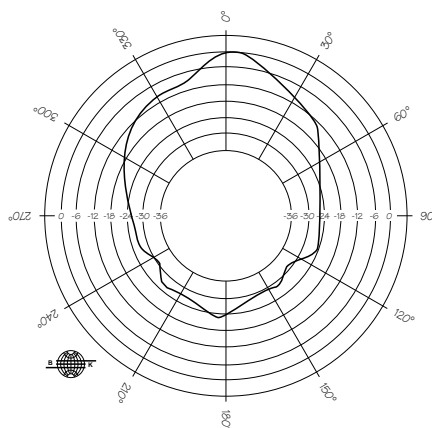
- 4.5.2 Vertical Polar Data
- 4.5.2.4 Octave Band 1,000 Hz



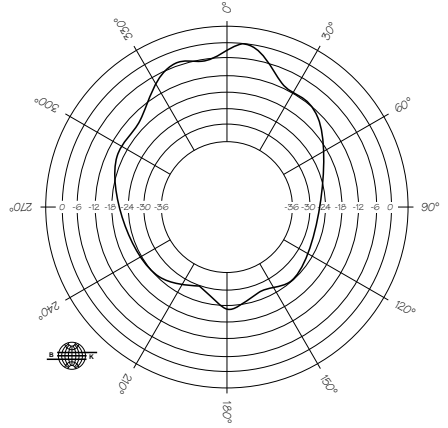
MH660 Vertical Polar Data  
Octave Band 1000 Hz



MH660 Vertical Polar Data  
1/3 Octave Band 800 Hz



MH660 Vertical Polar Data  
1/3 Octave Band 1000 Hz

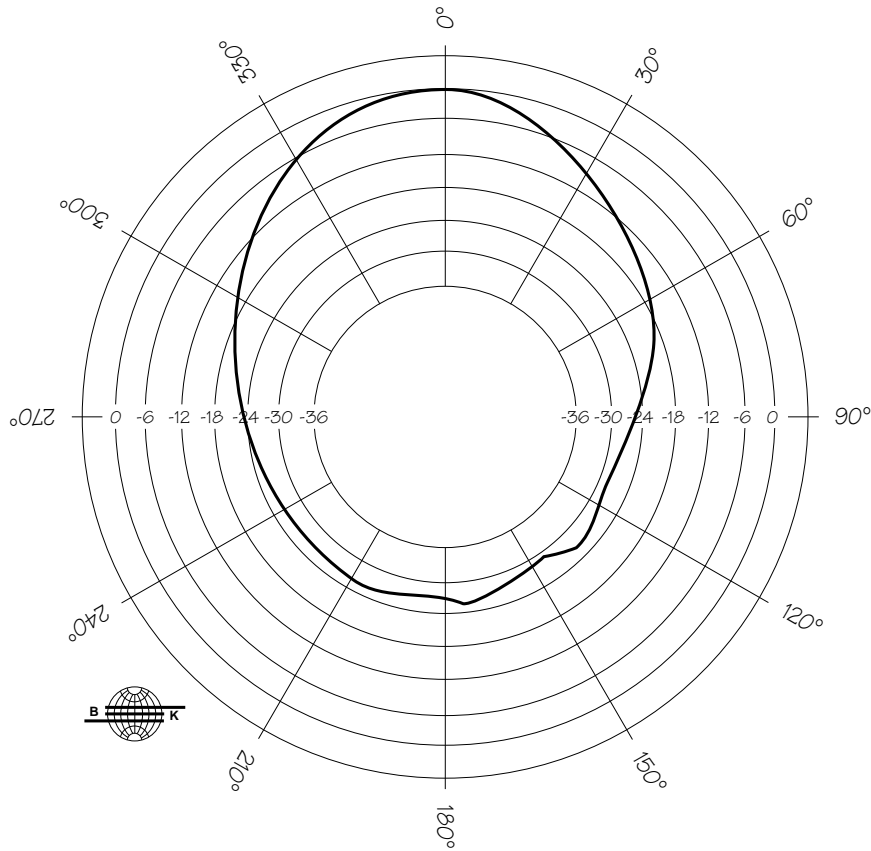


MH660 Vertical Polar Data  
1/3 Octave Band 1250 Hz

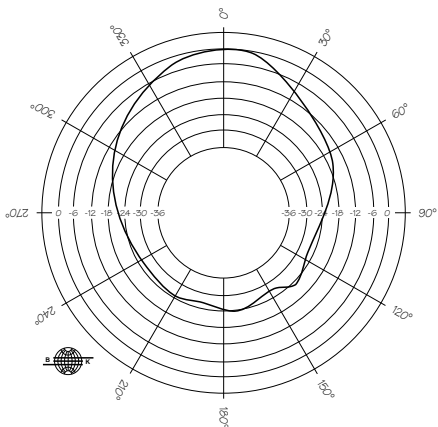


### 4.5 MH660iE POLAR RESPONSE

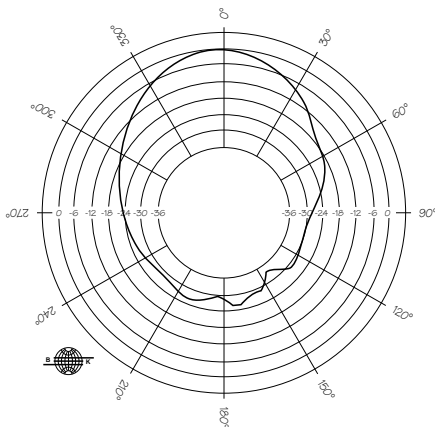
- 4.5.2 Vertical Polar Data
- 4.5.2.5 Octave Band 2,000 Hz



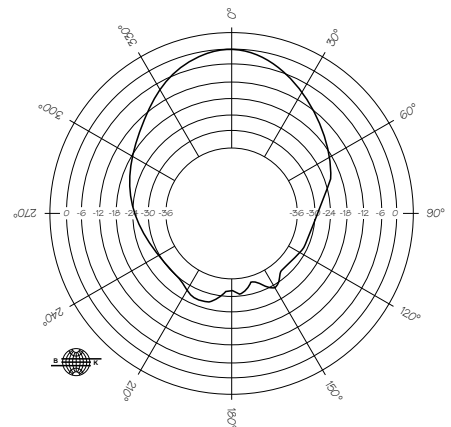
MH660 Vertical Polar Data  
Octave Band 2000 Hz



MH660 Vertical Polar Data  
1/3 Octave Band 1600 Hz



MH660 Vertical Polar Data  
1/3 Octave Band 2000 Hz

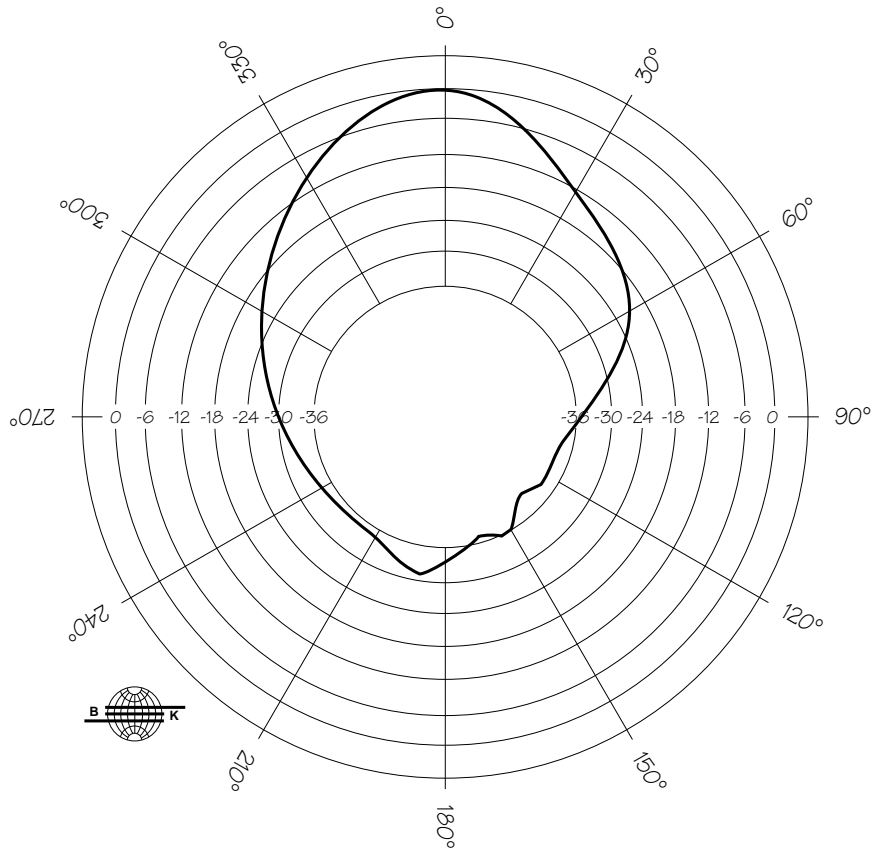


MH660 Vertical Polar Data  
1/3 Octave Band 2500 Hz

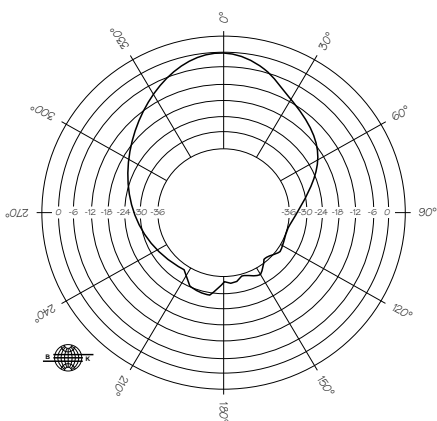


### 4.5 MH660iE POLAR RESPONSE

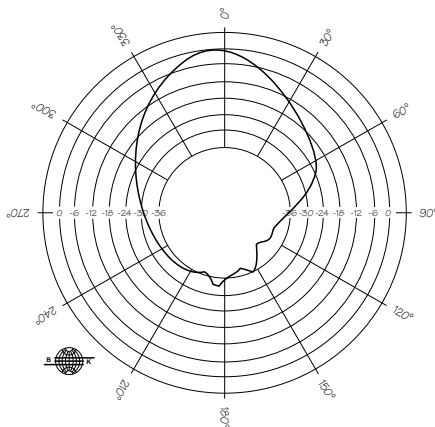
- 4.5.2 Vertical Polar Data
- 4.5.2.6 Octave Band 4,000 Hz



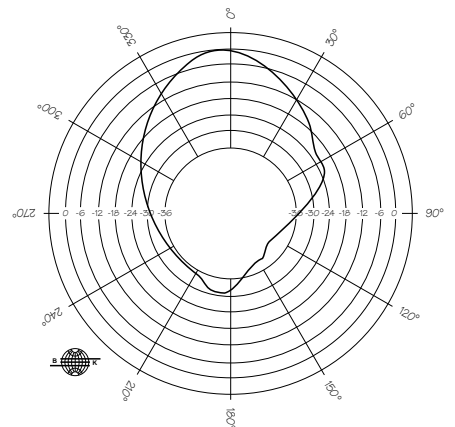
MH660 Vertical Polar Data  
Octave Band 4000 Hz



MH660 Vertical Polar Data  
1/3 Octave Band 3150 Hz



MH660 Vertical Polar Data  
1/3 Octave Band 4000 Hz

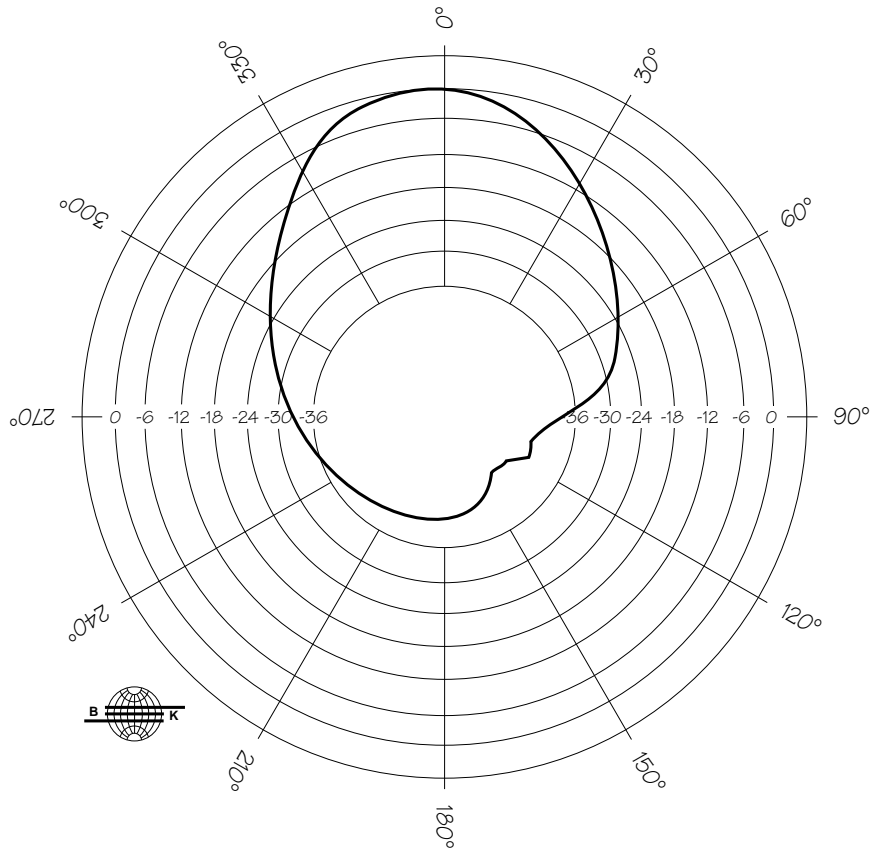


MH660 Vertical Polar Data  
1/3 Octave Band 5000 Hz

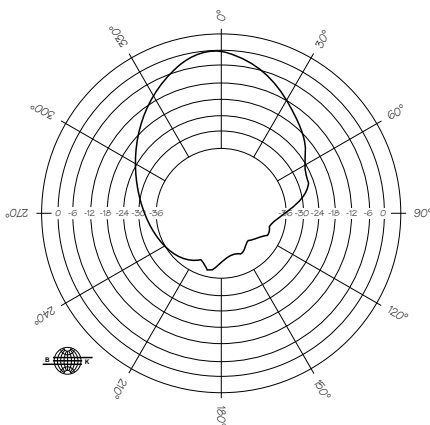


### 4.5 MH660iE POLAR RESPONSE

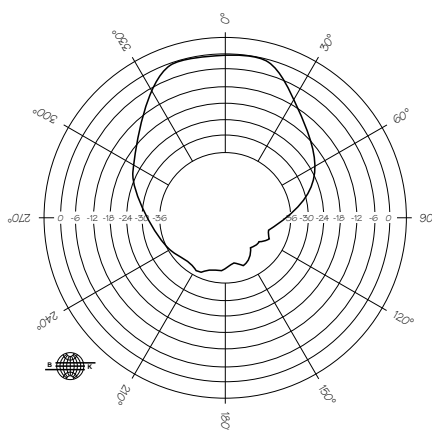
- 4.5.2 Vertical Polar Data
- 4.5.2.7 Octave Band 8,000 Hz



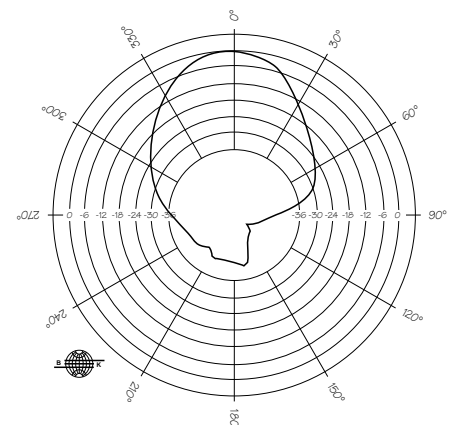
MH660 Vertical Polar Data  
Octave Band 8000 Hz



MH660 Vertical Polar Data  
1/3 Octave Band 6300 Hz



MH660 Vertical Polar Data  
1/3 Octave Band 8000 Hz

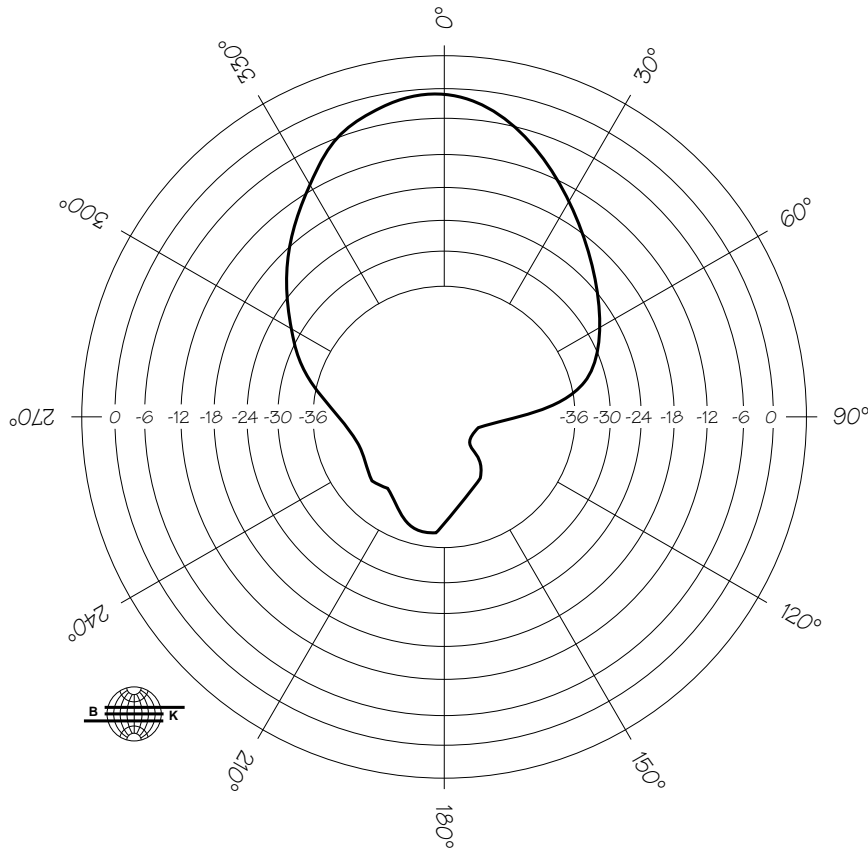


MH660 Vertical Polar Data  
1/3 Octave Band 10000 Hz

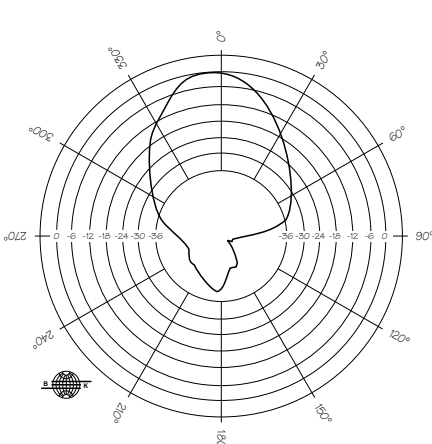


### 4.5 MH660iE POLAR RESPONSE

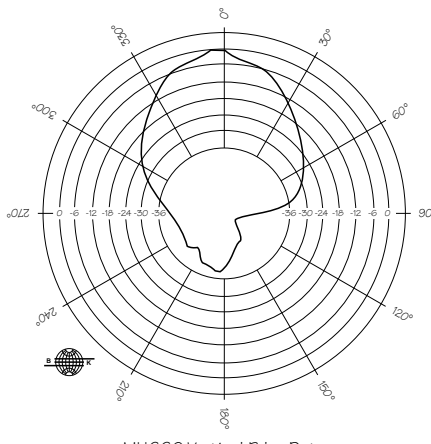
- 4.5.2 Vertical Polar Data
- 4.5.2.8 Octave Band 16,000 Hz



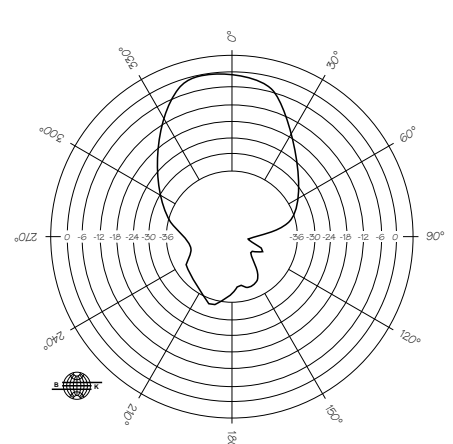
MH660 Vertical Polar Data  
Octave Band 16000 Hz



MH660 Vertical Polar Data  
1/3 Octave Band 12500 Hz



MH660 Vertical Polar Data  
1/3 Octave Band 16000 Hz



MH660 Vertical Polar Data  
1/3 Octave Band 20000 Hz

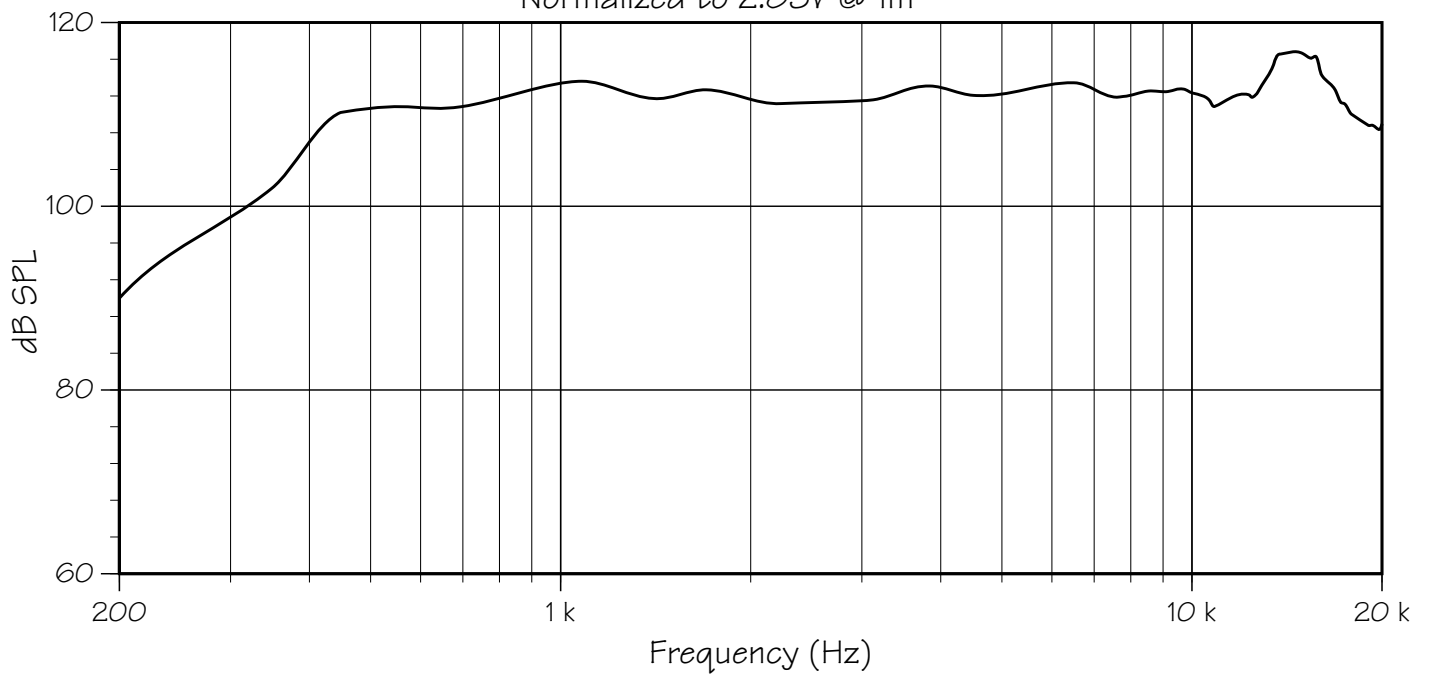


### 4.6 MH660iE PERFORMANCE DATA

#### 4.6.1 Axial Frequency Response

### MH660iE through MX300i-660EBH with Sub ADJ Axial Frequency Response

Normalized to 2.83V @ 1m

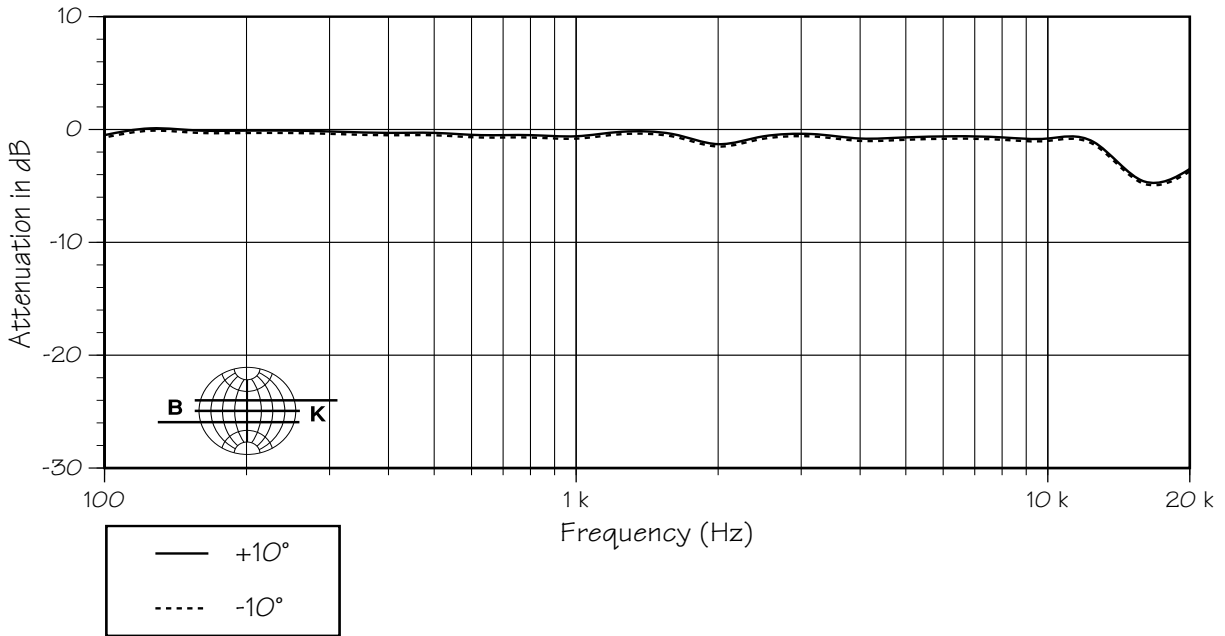




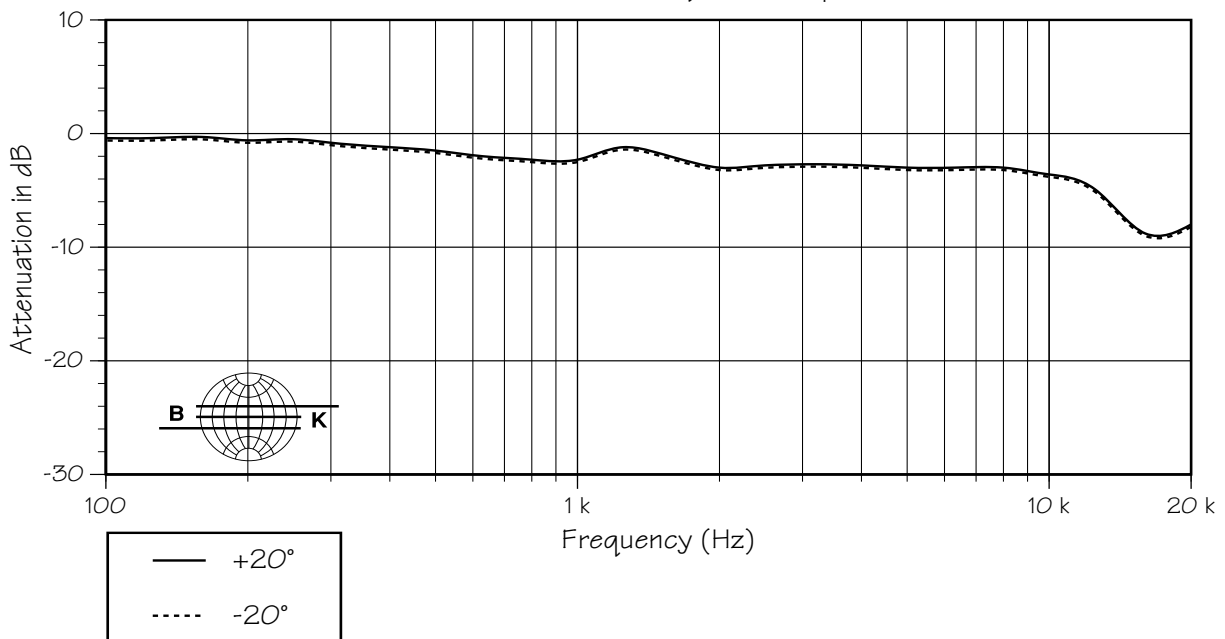
## 4.6 MH660iE PERFORMANCE DATA

- 4.6.2 Off Axis Frequency Response
- 4.6.2.1 Horizontal (Normalized To Axial Response)

MH660E w/MX300i-660EBH  
Horizontal Off-Axis Frequency Response



MH660E w/MX300i-660EBH  
Horizontal Off-Axis Frequency Response





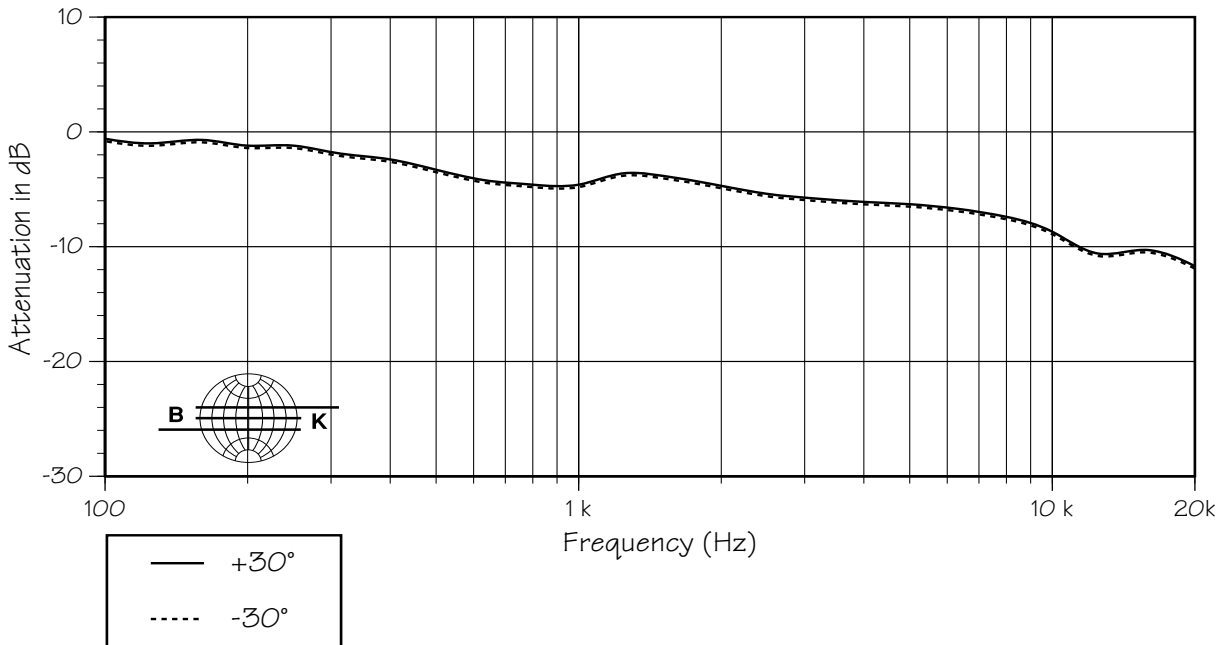
### 4.6 MH660iE PERFORMANCE DATA

4.6.2 Off Axis Frequency Response

4.6.2.1 Horizontal (Normalized To Axial Response) Continued

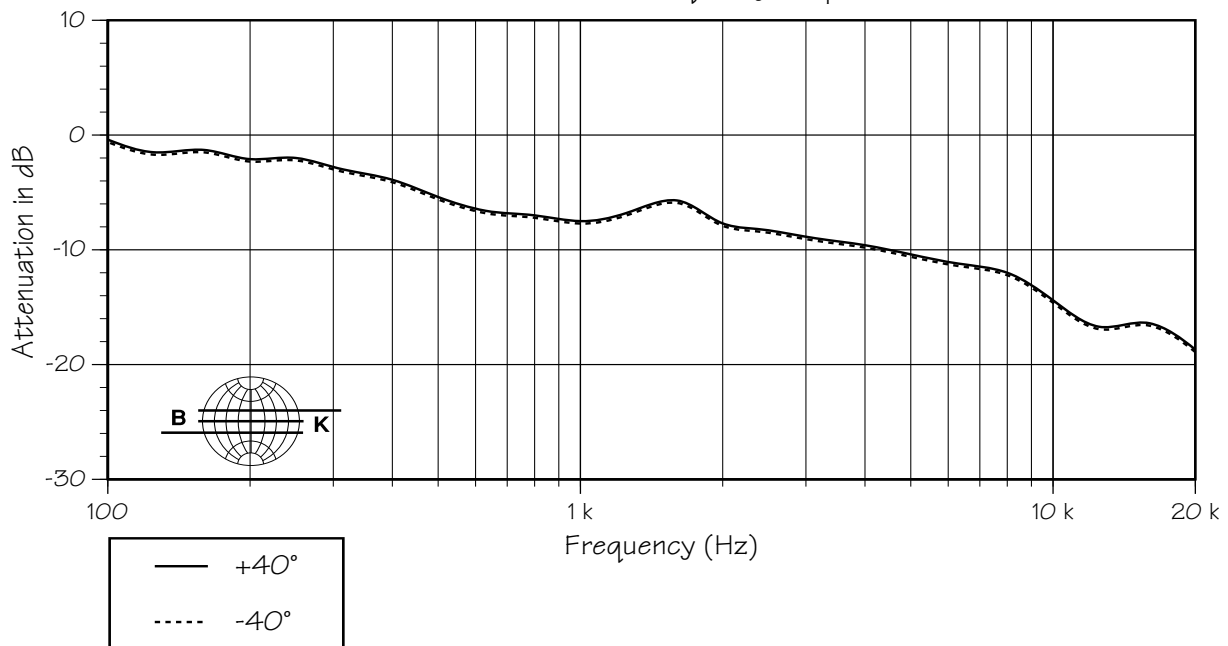
#### MH660E w/MX300i-660EBH

Horizontal Off-Axis Frequency Response



#### MH660E w/MX300i-660EBH

Horizontal Off-Axis Frequency Response





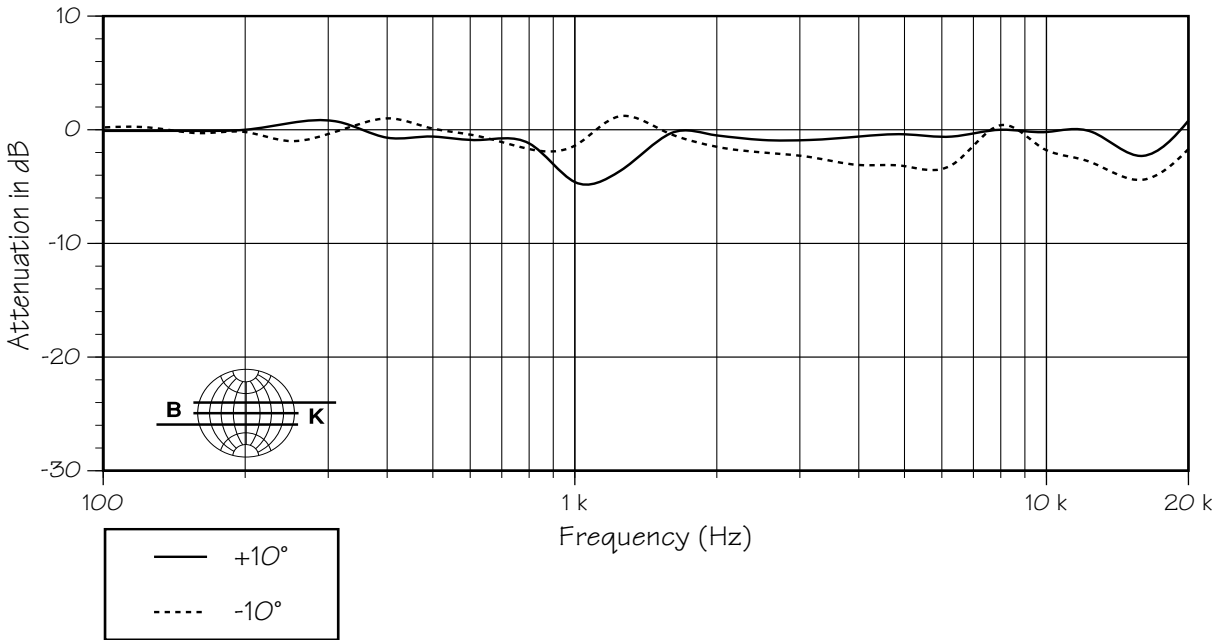
### 4.6 MH660iE PERFORMANCE DATA

4.6.2 Off Axis Frequency Response

4.6.2.2 Vertical (Normalized To Axial Response)

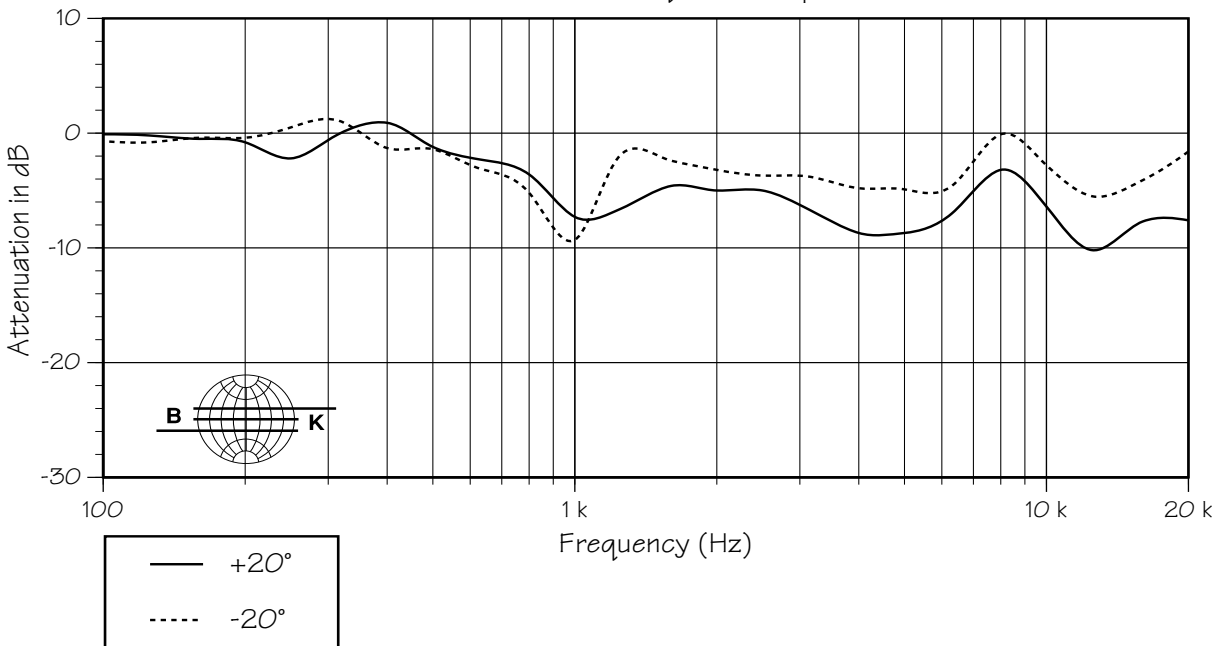
#### MH660E w/MX300i-660EBH

Vertical Off-Axis Frequency Response



#### MH660E w/MX300i-660EBH

Vertical Off-Axis Frequency Response





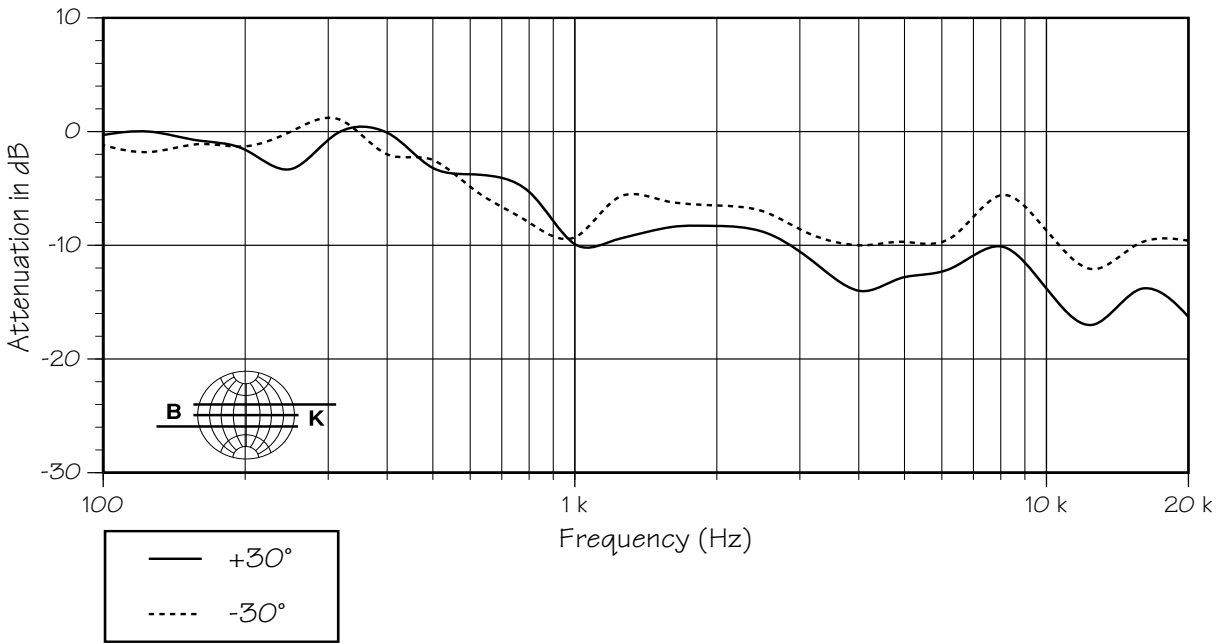
### 4.6 MH660iE PERFORMANCE DATA

4.6.2 Off Axis Frequency Response

4.6.2.2 Vertical (Normalized To Axial Response) Continued

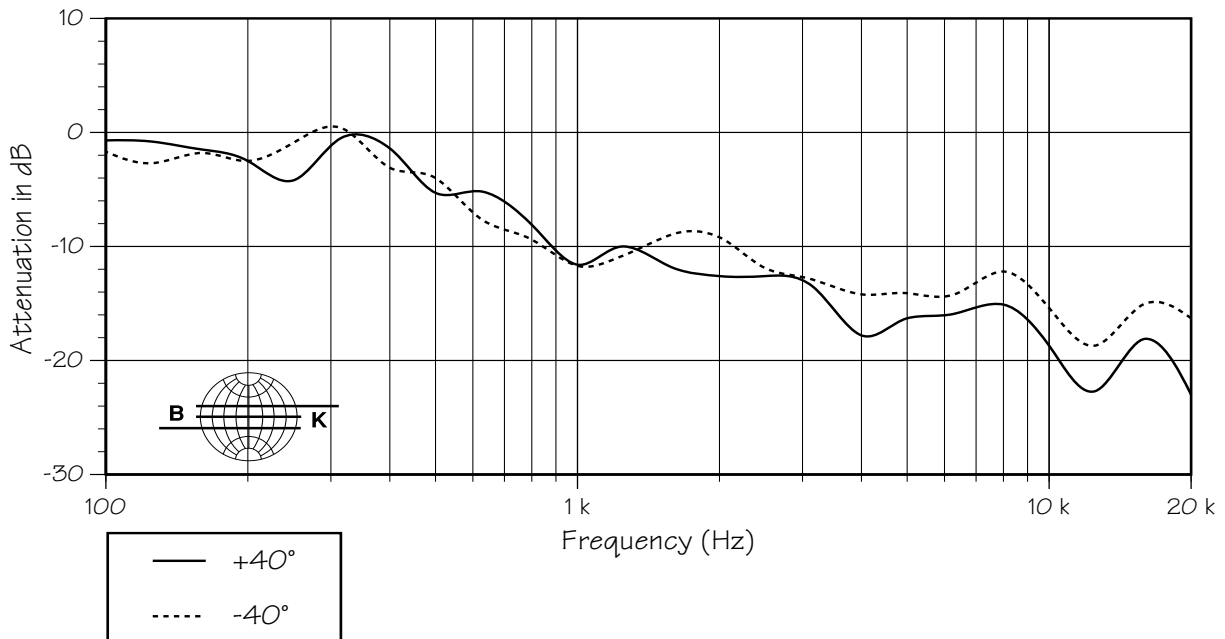
#### MH660E w/MX300i-660EBH

Vertical Off-Axis Frequency Response



#### MH660E w/MX300i-660EBH

Vertical Off-Axis Frequency Response

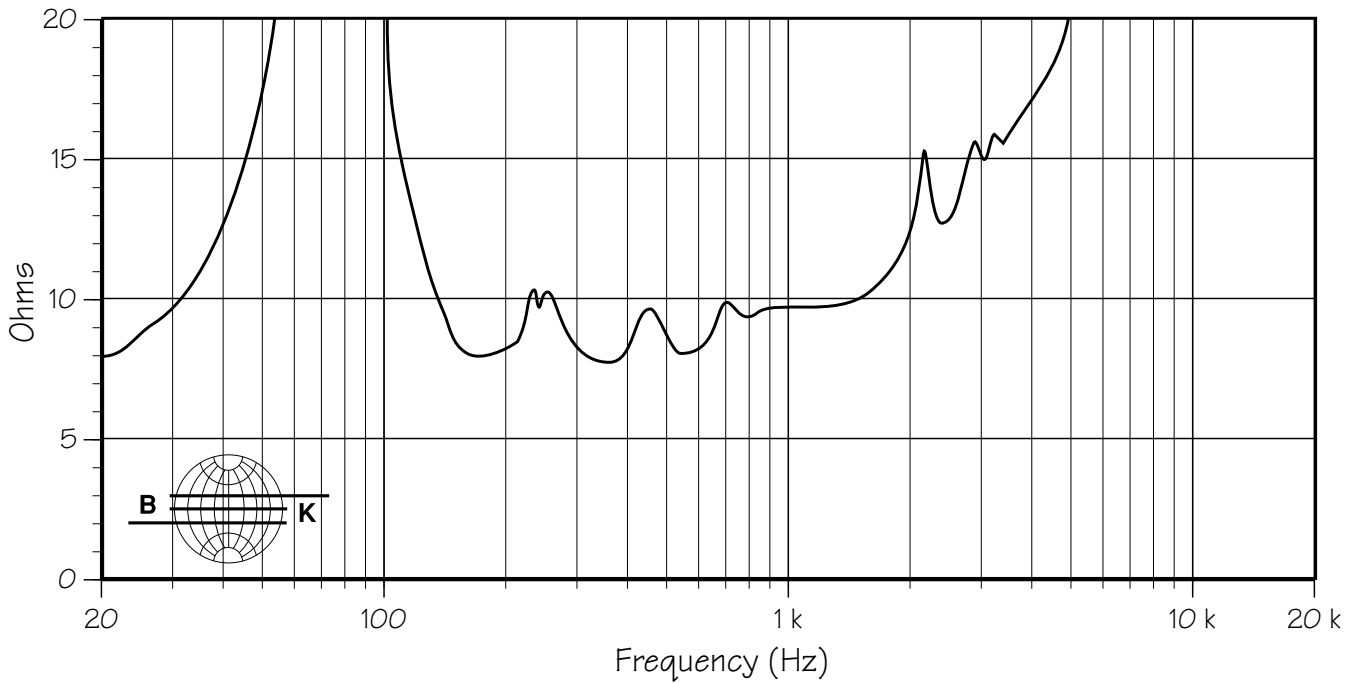




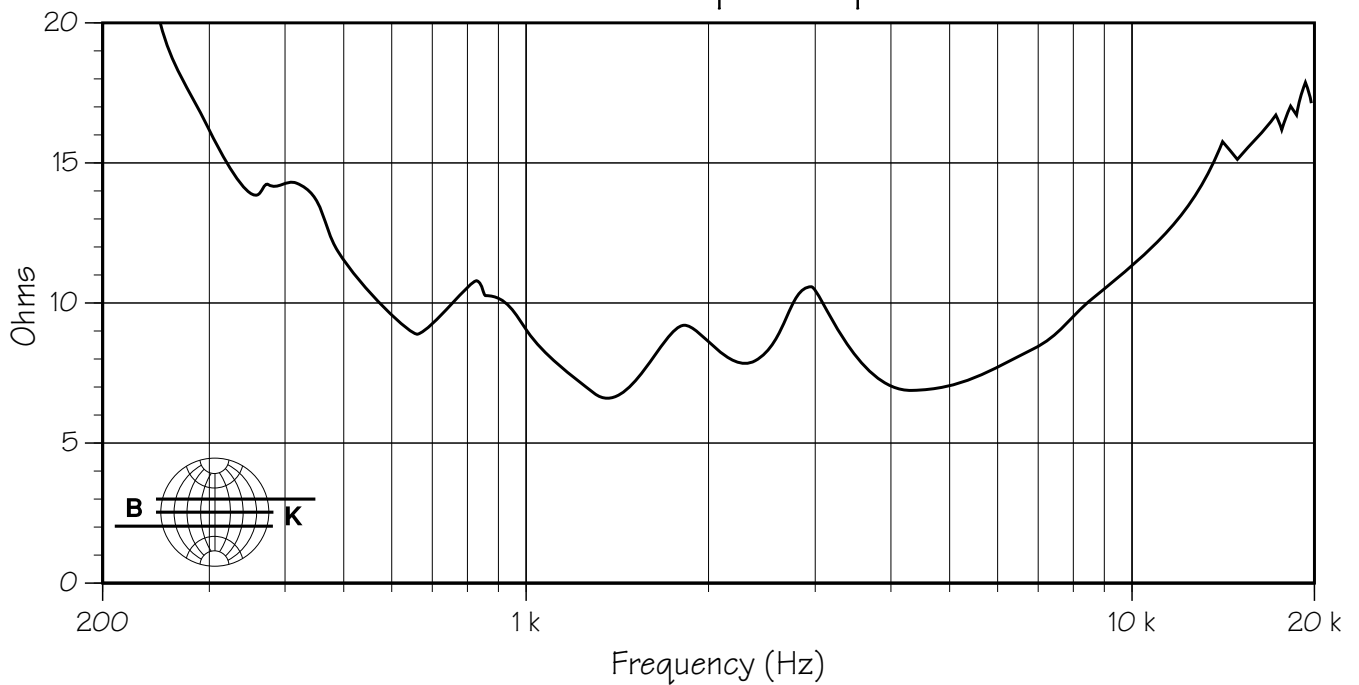
### 4.6 MH660iE PERFORMANCE DATA

#### 4.6.3 MH660iE Impedance

### MH660iE MF Input Impedance



### MH660iE HF Input Impedance



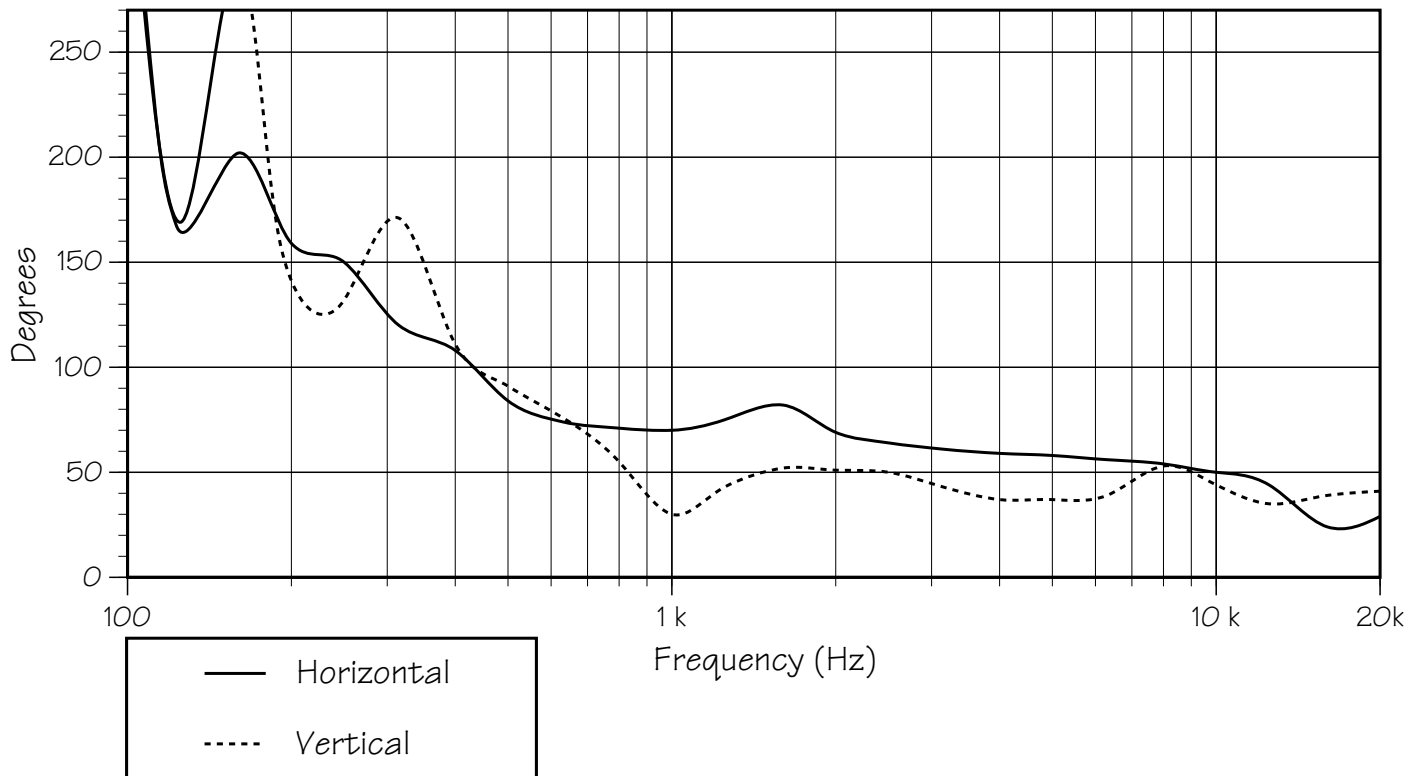


### 4.6 MH660iE PERFORMANCE DATA

4.6.4 Beamwidth vs Frequency

4.6.4.1 Graphic Data

### MH660iE w/MX300i-660EBH Beamwidth vs Frequency





### 4.6 MH660iE PERFORMANCE DATA

4.6.4 Beamwidth vs Frequency

4.6.4.2 Tabular Data

Frequency	Horizontal	Vertical
100	360	360
125	161	169
160	202	291
200	159	134
250	150	132
315	120	171
400	108	111
500	84	91
630	74	76
800	71	55
1000	70	30
1250	75	43
1600	82	52
2000	69	51
2500	64	50
3150	61	43
4000	59	37
5000	58	37
6300	56	39
8000	54	53
10000	50	44
12500	44	35
16000	24	39
20000	29	41

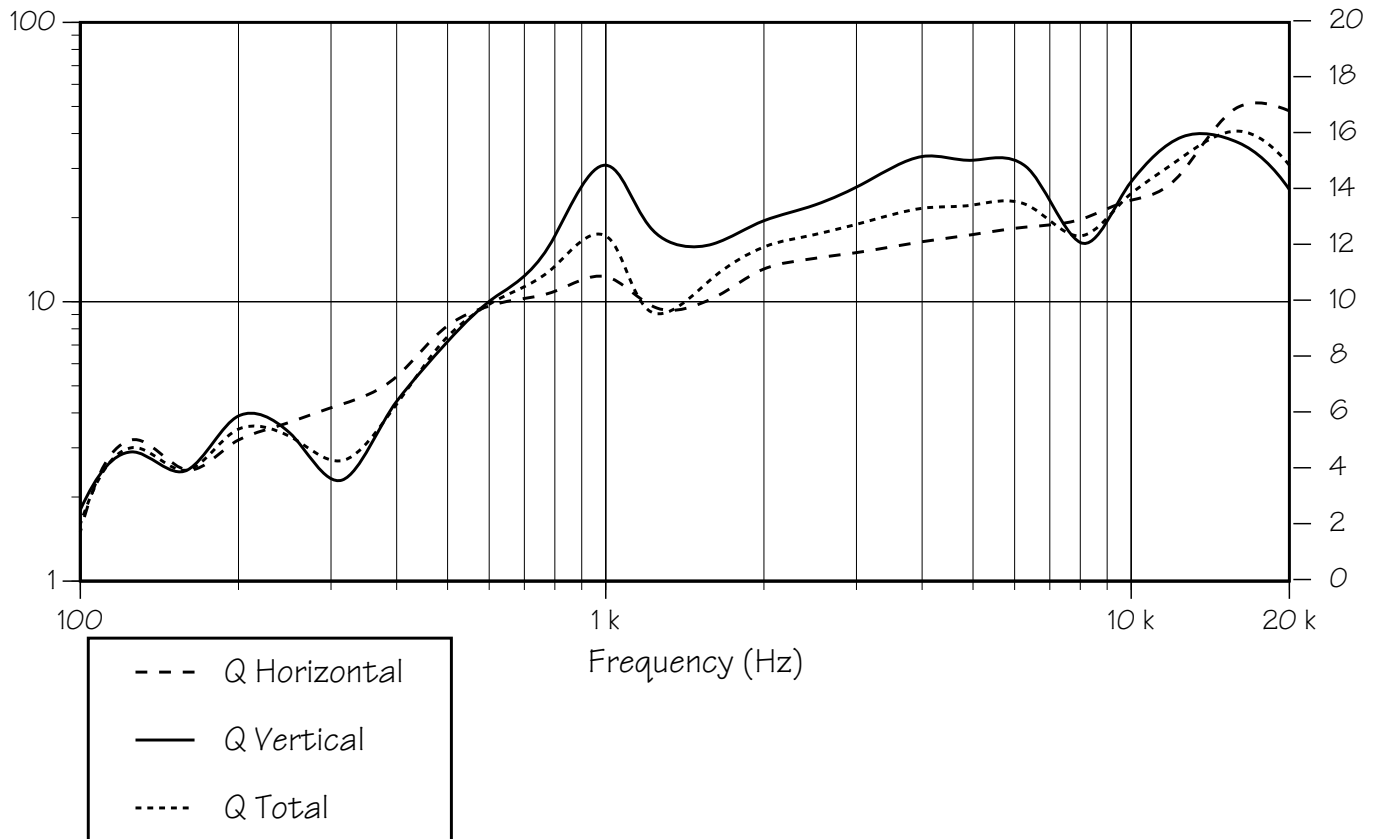


### 4.6 MH660iE PERFORMANCE DATA

4.6.5 Q & Directivity vs Frequency

4.6.5.1 Graphic Data

MH660E w/MX300i-660EBH Q and Directivity





### 4.6 MH660iE PERFORMANCE DATA

4.6.5 Q & Directivity vs Frequency

4.6.7.2 Tabular Data

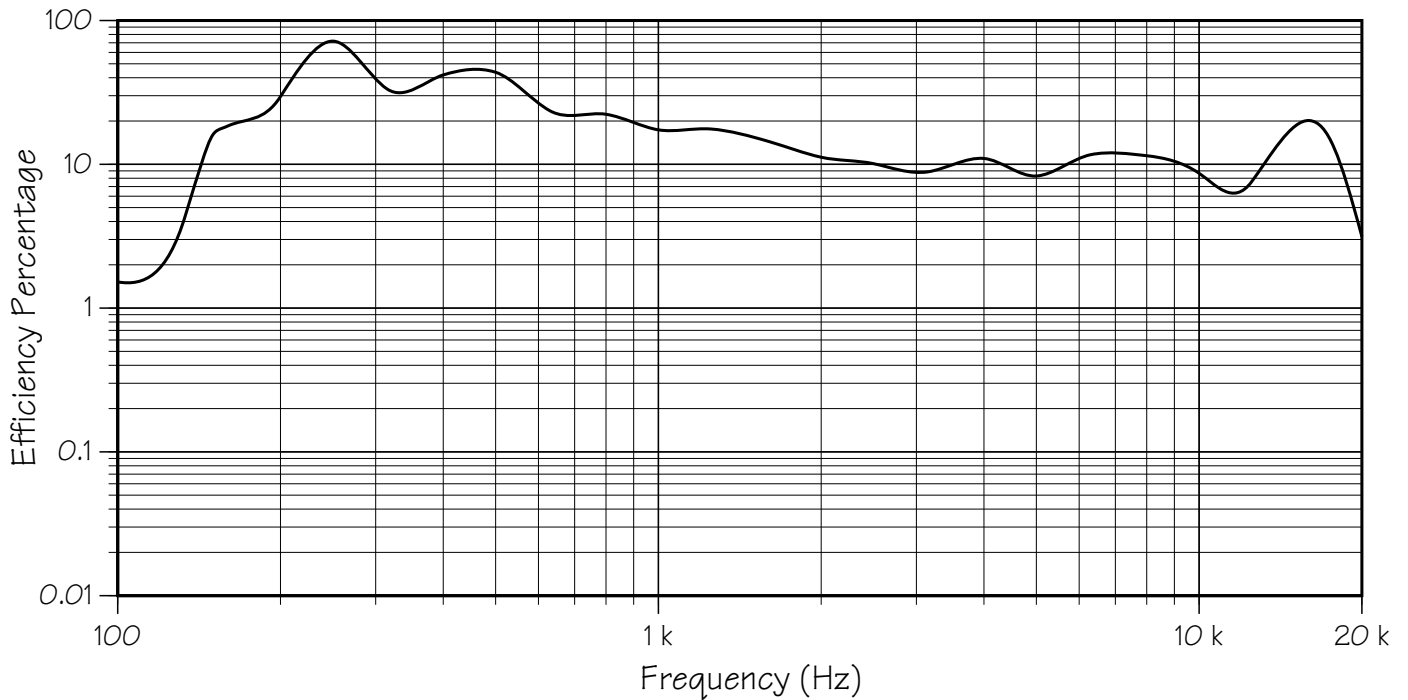
Frequency:	Horizontal:	Vertical:	Total:
100	1.5	1.8	1.6
125	3.2	2.9	3
160	2.5	2.5	2.5
200	3.2	3.9	3.5
250	3.7	3.4	3.3
315	4.3	2.3	2.7
400	5.4	4.4	4.3
500	8.2	7.2	7.5
630	9.9	10.7	10.3
800	10.9	17.2	13.4
1000	12.3	30.8	17.2
1250	9.5	16.5	8.5
1600	10.3	16.1	12.2
2000	13.1	19.5	15.7
2500	14.3	22.2	17.4
3150	15.2	27	19.4
4000	16.4	33.1	21.6
5000	17.4	32.1	22.2
6300	18.5	30.5	22.3
8000	19.7	16.3	17.2
10000	23.1	26.9	24.4
12500	29.1	38.9	32.9
16000	49.8	37.1	40.8
20000	48.2	25.2	30.8



### 4.6 MH660iE PERFORMANCE DATA

#### 4.6.6 Efficiency vs Frequency

MH660iE w/MX300i-660EBH Percent Efficiency

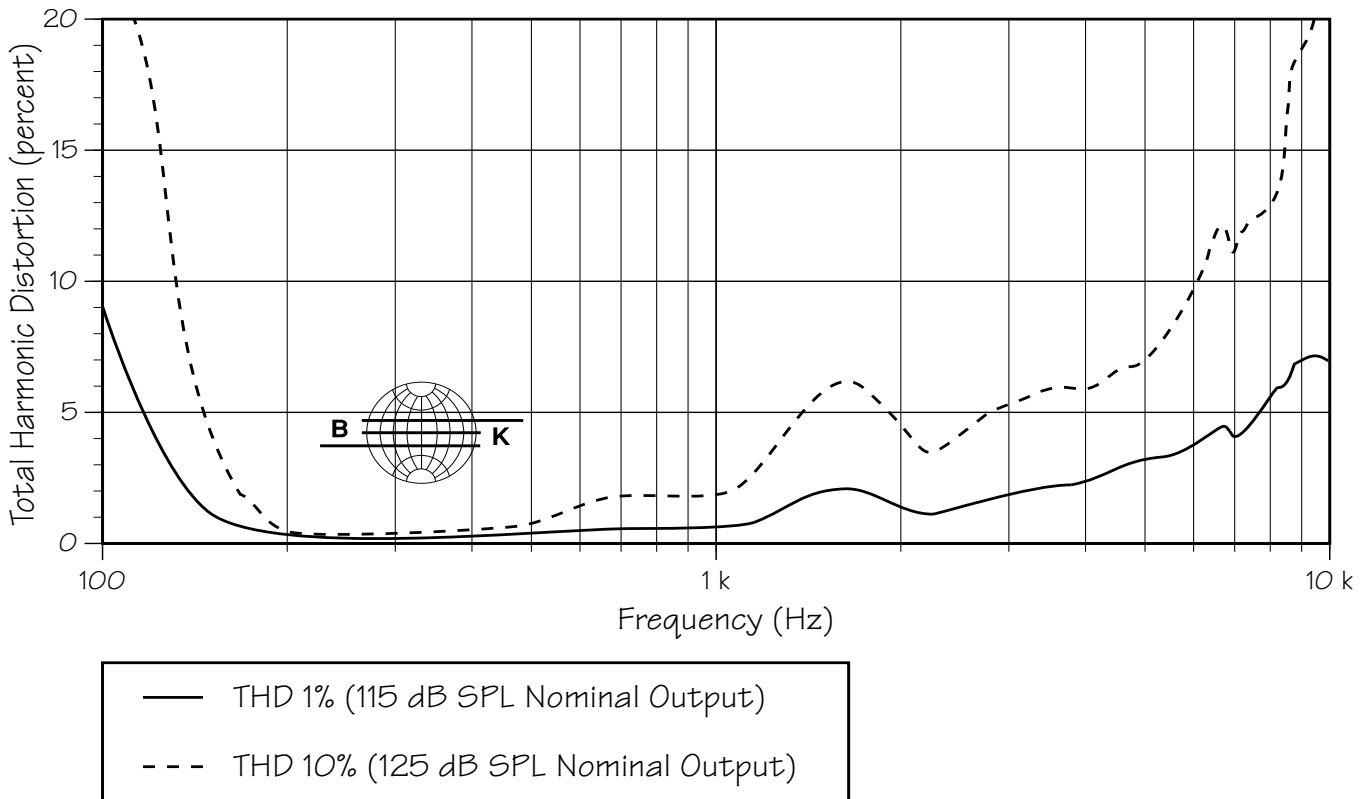




### 4.6 MH660iE PERFORMANCE DATA

- 4.6.7 Distortion Measurements
- 4.6.7.1 Total Harmonic Distortion Data

#### MH6600iE Total Harmonic Distortion

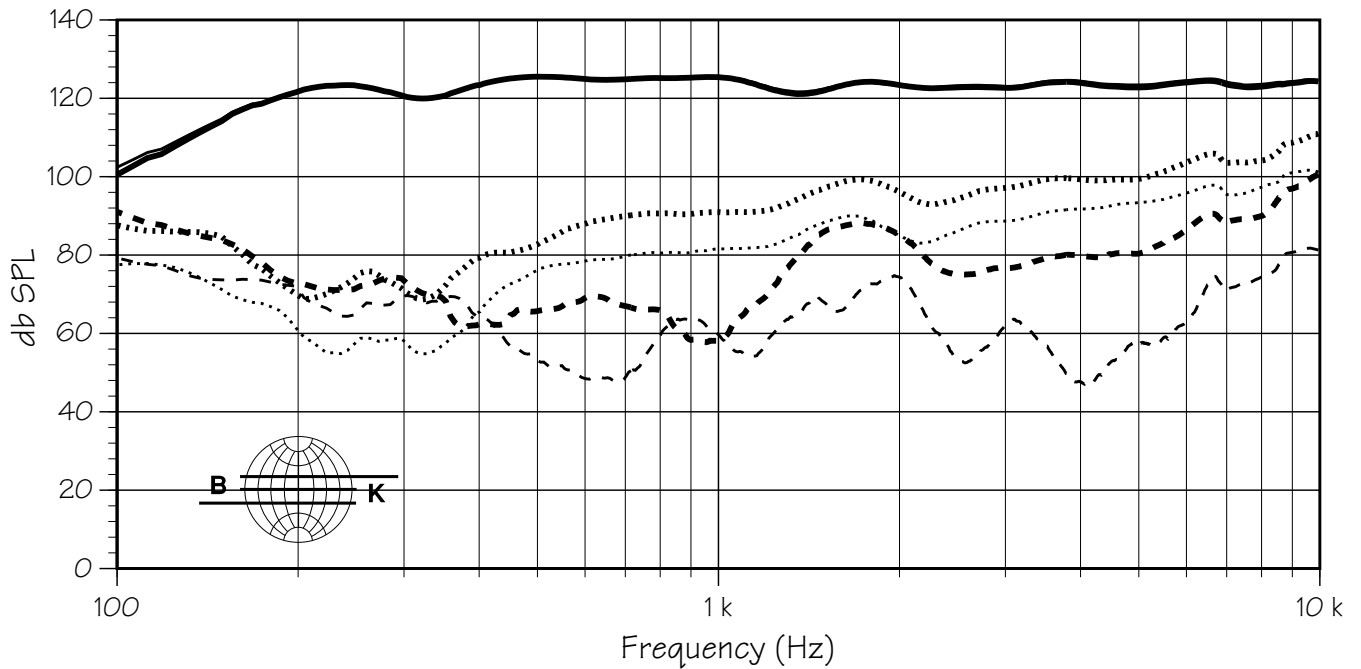




### 4.6 MH660iE PERFORMANCE DATA

- 4.6.7 Distortion Measurements
- 4.6.7.2 Harmonic Distortion Data

MH660E Harmonic Distortion



.....	2nd Harmonic (1%)	.....	2nd Harmonic (10%)
- - -	3rd Harmonic (1%)	- - -	3rd Harmonic (10%)
—	Fundamental (1%)	—	Fundamental (10%)

1% distortion curves raised 10 dB for comparison.



## 4.7 CCEP™ CROSSOVER DATA & POWERING OPTIONS

### 4.7.1 MX300i-660EBH CCEP™

#### 4.7.1.1 Configuration Data

Part #: 360EBHA Main System: MH660E and BH862 Notes: CD5001 Subwoofer: Not Applicable

Designation	Value	PCB #	Function	Implementation
R1	Open	1 & 2	Off Mode Fixed LF Hi-Pass (with R2)	-3 dB @ 40 Hz
R2	124k	1 & 2	SB Fixed Boost	+6.0 dB @ 60 Hz
R3	6.19k	1 & 2	Parametric EQ	"+1.9 dB @ 8400 Hz, B=0.2"
R4	60.4 Ohms	1 & 2	Parametric EQ	"+1.9 dB @ 8400 Hz, B=0.2"
R5	3.92k	1 & 2	Parametric EQ	"+1.9 dB @ 8400 Hz, B=0.2"
R6	12.7k	1 & 2	Parametric EQ	"+1.9 dB @ 8400 Hz, B=0.2"
R7	26.1k	1 & 2	Off Mode LF Dynamic Boost (with R8)	+4.0 dB @ 40 Hz
R8	121k	1 & 2	Adj./Dist. Mode Dynamic Hi-Pass	-3 dB @ 13 Hz
R9	121k	1 & 2	Adj./Dist. Mode Dynamic Hi-Pass	-3 dB @ 13 Hz
R10	392k	1 & 2	Off Mode LF Dynamic Boost (with R9)	+4.0 dB @ 40 Hz
R11	5.62k	1 & 2	Parametric EQ	"+1.9 dB @ 8400 Hz, B=0.2"
R12	7.87k	1 & 2	Off Mode Fixed LF Hi-Pass (with R13)	-3 dB @ 40 Hz
R13	7.32k	1 & 2	SB Fixed Boost	+6.0 dB @ 60 Hz
R1	22.6k	3 & 4	LF Phase	100k/22nF -> 393 Hz
R2	6.65k	3 & 4	SB Gain	+2.5 dB
R3	3.48k	3 & 4	SB Gain	+2.5 dB
R4	124k	3 & 4	SB Threshold	1.5V
R5	6.19k	3 & 4	LF Gain	+2.0 dB
R6	3.74k	3 & 4	LF Gain	+2.0 dB
R7	1.0k	3 & 4	SB Phase	40k/100nF -> 1.63 kHz
R8	36.5k	3 & 4	Off/Dist. Mode LF Hi-Pass	-3 dB @ 40 Hz
R9	4.22k	3 & 4	HF Gain	+1.2 dB
R10	133k	3 & 4	LF Threshold	1.0V
R11	43.2k	3 & 4	Off/Dist. Mode LF Hi-Pass	-3 dB @ 40 Hz
R12	5.76k	3 & 4	HF Gain	+1.2 dB
R13	174k	3 & 4	HF Threshold	0.5V
R14		3 & 4	Not Used	
R15		3 & 4	Not Used	
R16		3 & 4	Not Used	
R17		3 & 4	Not Used	
"RN2, RN8"	3.0k		HF Hi-Pass	1129 Hz (47 nF)
"RN4, RN10"	3.0k		LF Low-Pass	1129 Hz (47 nF)
"RN5, RN11"	4.3k		LF Hi-Pass	370 Hz (100 nF)
"RN6, RN12"	4.3k		SB Low-Pass	370 Hz (100 nF)
Jumper	Pin 5			

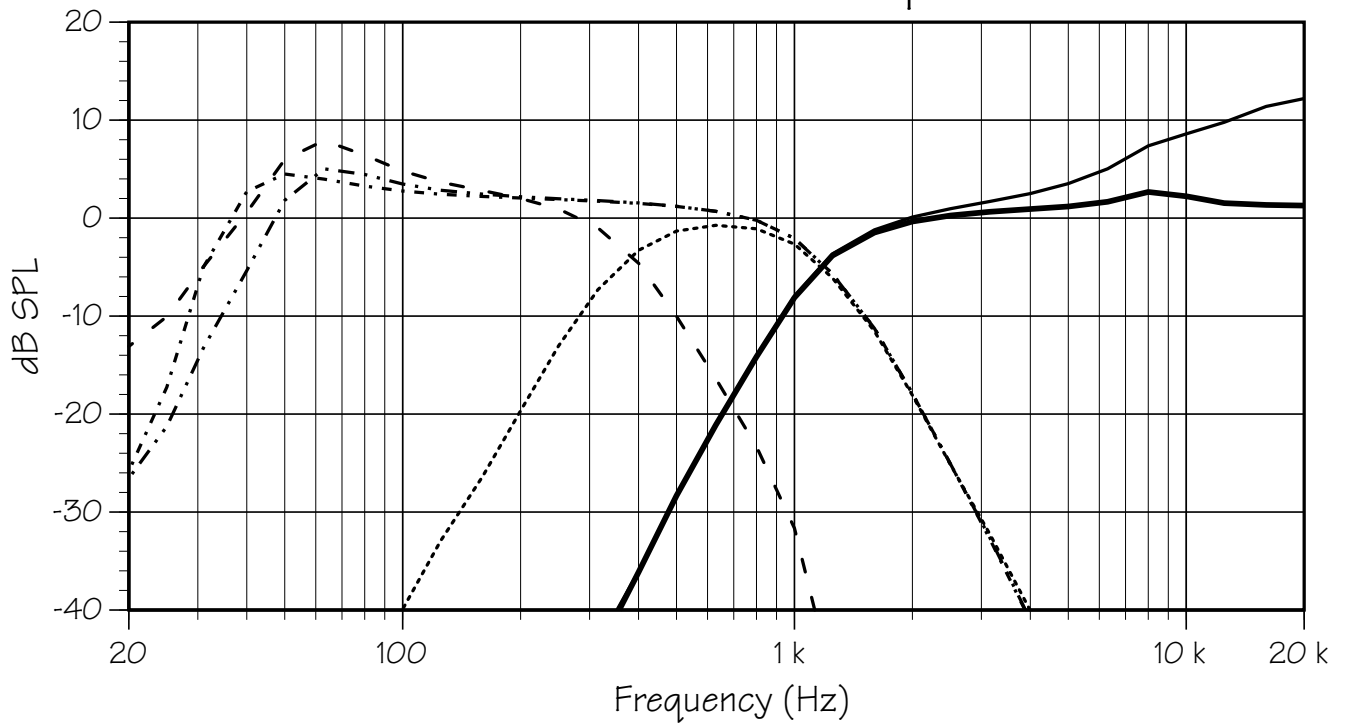


### 4.7 CCEP™ CROSSOVER DATA & POWERING OPTIONS

4.7.1 MX300i-660EBH CCEP™

4.7.1.2 Response Data

### MX300i-660EBH Response



—	HF with EQ	—	HF without EQ
.....	LF with SUB ADJ	.....	LF with SUB OFF
- - -	SB Data	- · - · -	LF with SUB DIST