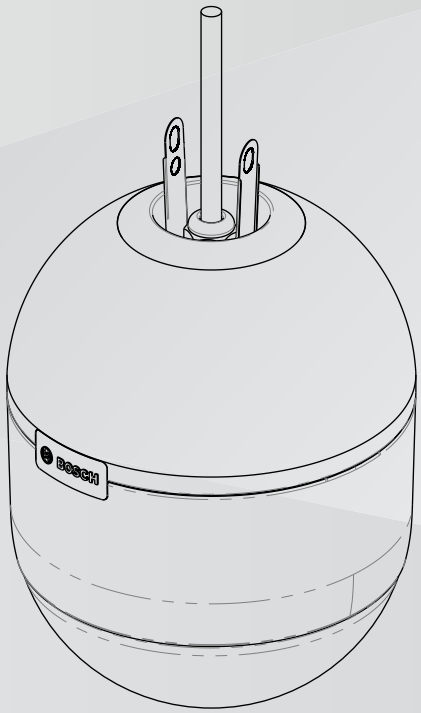
LS1 Pendant Sphere Loudspeaker

LS1-UC10U



en Installation note

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1 Safety

Warning!
Suspending any object is potentially dangerous and should only be attempted by individuals who have thorough knowledge of the techniques and regulations of suspending objects overhead. Bosch strongly recommends all loudspeakers be suspended taking into account all current national, federal, state, and local laws and regulations. It is the responsibility of the installer to ensure all loudspeakers are safely installed in accordance with all such requirements. When loudspeakers are suspended, Bosch strongly recommends the system be inspected at least once per year or as laws and regulations require. If any sign of weakness or damage is detected, remedial action should be taken immediately. The user is responsible for making sure the wall, ceiling, or structure is capable of supporting all objects suspended overhead. Any hardware used to suspend a loudspeaker not associated with Bosch is the responsibility of others.

Suspension Cable Important Safety Instructions:

Load - Do not exceed the **WLL** (Working Load Limit) of the pendant suspension cable. The WLL of the pendant suspension cable is 10 kg (22 lb).

No lifting - Do not use for lifting, such as in a crane or pulley situation.

No movement - The pendent suspension cable is to be used to suspend static loads only. Do not use the cable to suspend moving objects or objects likely to be subject to movement.

No joining - Do not splice together the pendent suspension cable with another cable or other joining device. The pendent suspension cable as supplied is the maximum length available and should not be altered in any way.

Not for re-use - Do not re-use the pendent suspension cable; it is designed for permanent fixed installation use only.

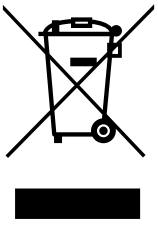
Lubricants - Do not apply oil or any other lubricant to any part of the assembly.

Round duct/pipes - When wrapping around duct or other round pipes, do not exceed an angle of 60 degrees between the top of the pipe and the pendent suspension cable.

I-Beams - Minimum radius on I-Beams to be no less than 1/8-inch.

Corners/edges - Cables in contact with corners, edges, protrusions, or abrasive surfaces shall be protected with a material of sufficient strength, thickness, and construction to prevent damage.

1.1 Notices



Old electrical and electronic appliances
Electrical or electronic devices that are no longer serviceable must be collected separately and sent for environmentally compatible recycling (in accordance with the European Waste Electrical and Electronic Equipment Directive).
To dispose of old electrical or electronic devices, you should use the return and collection systems put in place in the country concerned.

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2 Introduction

The LS1-UC10U pendant sphere loudspeaker provides a convenient way to equip open ceiling spaces with sound where conventional surface or ceiling mount speakers cannot be used. It is ideal for use in a wide variety of environments and spaces to provide background speech and music.
The LS1-UC10U pendant sphere loudspeaker includes an inline DC blocking capacitor for use with DC supervision enabled systems. The maximum allowed supervised voltage is 24 VDC.
The LS1-UC10U pendant sphere loudspeaker is UL1480-6, UL1408A, CSA C22.1 and CSA C22.2 certified for fire and evacuation use.

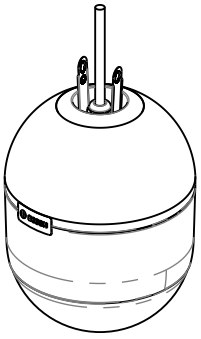
Read through this manual to familiarize yourself with the safety information, features, and applications before you use these products.

3 System overview

3.1 Packing list

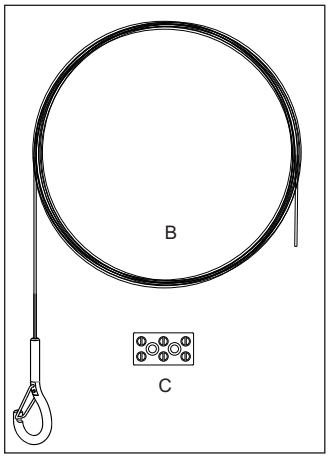
The major components include in one box for the LS1-UC10U pendant sphere loudspeaker.

Item	Quantity	Description
A	2	Pendant speakers
B	2	Pendant suspension cables
C	2	Ceramic Terminal Block
D	1	Installation manual



A (x2)

D



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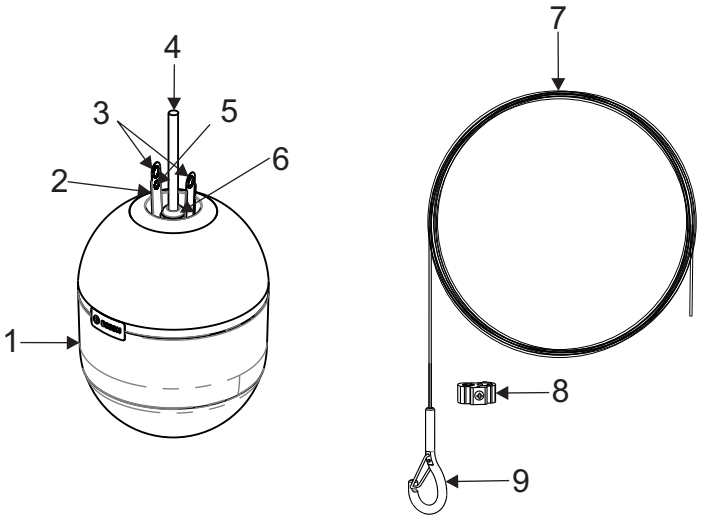
3.2 Product information



Item	Description	Item	Description
1	Speaker	6	Grommet
2	Hanger brackets	7	Pendant suspension cable
3	Main suspension bracket holes	8	Coupler
4	Electrical connection wire	9	Support hanger
5	Secondary hanger bracket hole		

3.3 Pendant suspension cable

The pendant suspension cable is supplied with the LS1-UC10U kit. The material is strong steel wire rope. It is designed with a locking spring mechanism which secures the wire rope and allows for easy adjustment of the installation height, up to 15 ft (4.57 m).

Working Load Limit

The pendant suspension cable's WLL is based on the suspension being hung vertically. If the cable is suspended at an angle, a second suspension cable is required.

Caution!

Do not hang the pendant suspension cable at an angle in excess of 60° from vertical.

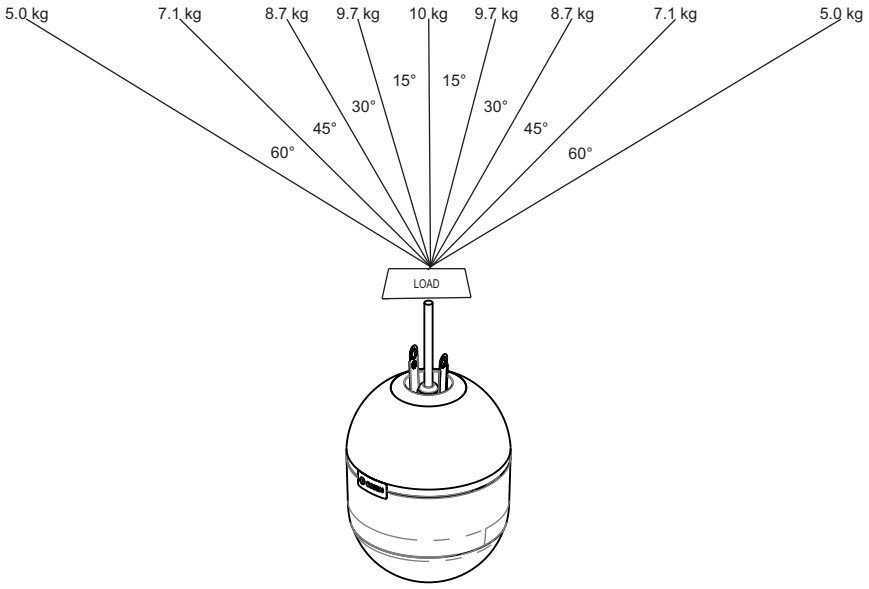


Figure 3.1: Pendant cable working load limit

4 Wiring

It is recommended to hang the speaker before making the wire connections.
Wiring method which shall be in accordance with:

1. In Canada, CSA C22.1, Canadian Electrical Code, Part I Safety Standard for Electrical Installations, Section 32;
2. In the United States, the National Electrical Code, NFPA 70, and the National Fire Alarm and Signaling Code, NFPA72;

Maximum recommended wiring length (0.5 dB loss)			
	100 Watt	40 Watt	10 Watt
18 AWG	230 ft	560 ft	2300 ft
16 AWG	360 ft	900 ft	3600 ft
14 AWG	560 ft	1400 ft	5600 ft
12 AWG	910 ft	2300 ft	9100 ft

See also

– *Installation, page 11*

4.1 Ceramic block connector

Connect the speaker using the ceramic block connector.

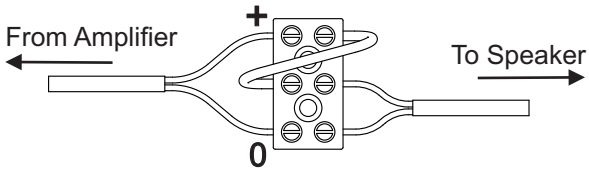


Figure 4.1: Ceramic block connector

4.2 Transformer Taps

Carefully observe the wire colors to make sure you are connecting the desired transformer tap to the amplifier (+) terminal, and connect the red speaker wire to the amplifier (-) terminal.
Transformer wire-tap options:

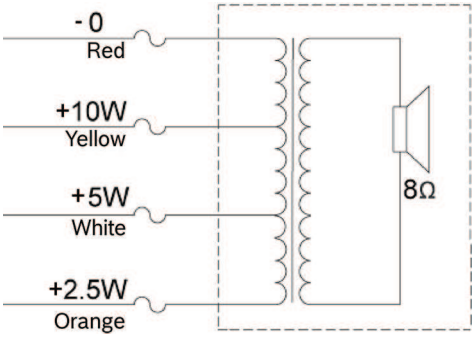
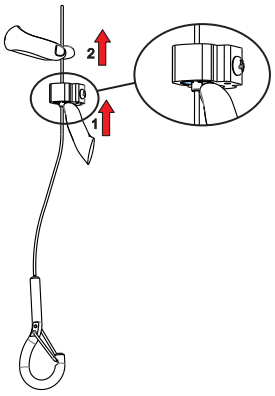


Figure 4.2: Circuit diagram

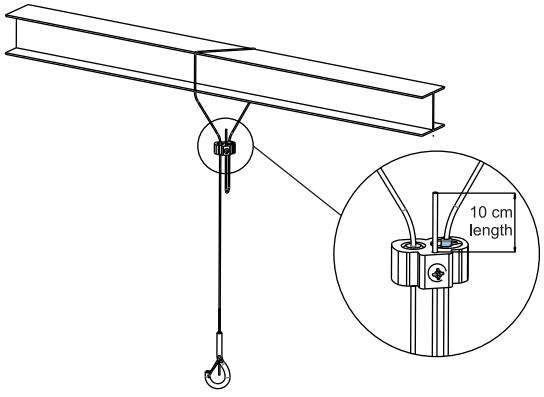
5 Installation

To **install the pendant speaker**, do the following:

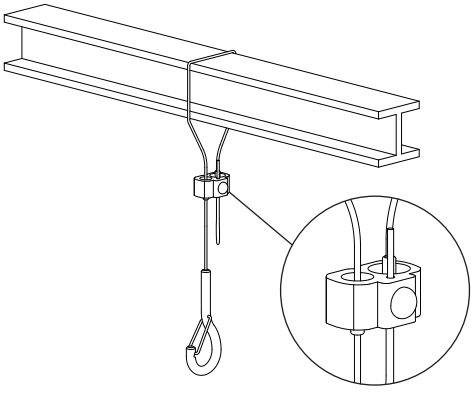
1. Thread the **cable** into the coupler.



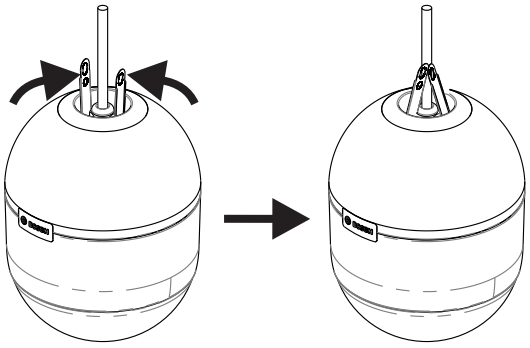
2. Adjust the **pendant suspension cable** length.



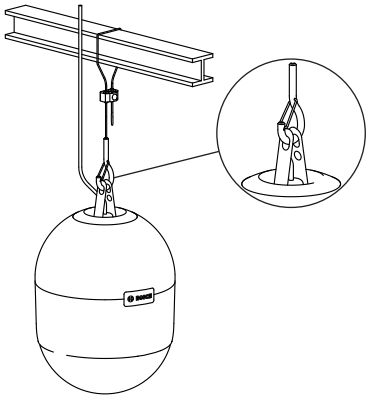
3. Place the **pendant suspension cable** over the ceiling support.
4. Thread the **cable** into the opposite side of the coupler.
5. Once the proper height adjustment has been made, put the **cable tail** through the through hole of the coupler, and leave at least 10 cm (4 in) of length. The maximum audio wire length is 3 m (10 ft).



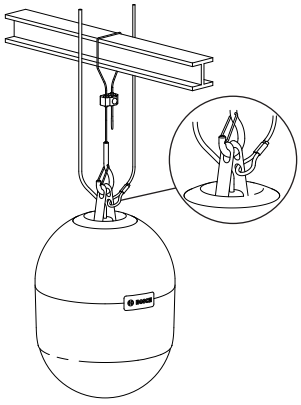
6. Tighten the **screw** to secure the cable.
7. Pinch the **two legs of the hanger bracket** together.



8. Support the **speaker**, snap the support hanger through both main hanger bracket holes located on each individual hanger bracket leg.



9. Attach a **secondary auxiliary support cable** onto of the secondary auxiliary support hole, located on one bracket hanger leg.



10. Secure the **secondary auxiliary support cable** to a different ceiling support point of the building structure.

6 Troubleshooting

Problem	Possible Causes	Action
No Sound	Amplifier	Connect a known working test speaker to the amplifier outputs. If there is no sound, check all electronics are on, the signal routing is correct, the source is active; the volume is turned up, and so on. Correct/Repair/Replace as necessary. If there is sound, the problem is in the wiring.
	Wiring	Verify you have connected the correct wire pairs to the amplifier. Play something at low level through the amplifier (for example, from a CD player or tuner). Connect the test speaker in parallel with the malfunctioning line. If the sound has gone or is very weak, the line has a short in it (possibly a severe scrape, pinch, or staple puncture). If the sound level is normal the wire is open (possibly a cut wire or missed connection). Using the test speaker, move down the line and test each connection/junction until you find the problem and correct it. Observe proper polarity.
		Verify you have the inputs and outputs connected to the correct wires. If the subwoofer input panel is not correctly wired, there will be little or no sound. Observe proper polarity.
Poor Low-Frequency Response	Speakers Wired Out-of-Polarity	When two speakers are connected out of polarity (out of phase), the low frequencies will cancel each other acoustically. Carefully observe the wire markings or tracers on your speaker wires. Verify the amplifier (+) terminal is connected to the desired color-coded transformer terminals and the amplifier (-) terminal is connected to the red speaker terminals.
Intermittent Output such as, Crackling or Distortion	Faulty Connection	Check all connections at amplifier and speakers to ensure they are clean and tight. If the problem persists, it may be in the amplifier or wiring. See other actions above.
Constant Noise such as Buzzing, Hissing, Humming	Defective Amplifier or other Electronic Device	If the noise is present but no program material is playing, the likely cause is the signal chain in the electronics. Evaluate each component as necessary to isolate the problem.
	Poor System Grounding or Ground Loop	Check and correct the system grounding, as required.

If these suggestions do not solve your problem, contact your nearest dealer or distributor.

See also

– *Polar diagram, page 16*

7 Technical data

UL1480 Alarm/fire freq. range:	400 Hz -4 kHz		
Music freq. range:	80 Hz - 20 kHz		
Power handling:	10 W[2]		
Sensitivity (1 W, 1 m):	92 dB[3]		
Rated voltage: Rated impedance:		70.7 V	Rated UL 1480 SPL (10 ft)
	10 W	500 Ohm	92 dB
	5 W	1000 Ohm	89 dB
	2.5 W	2000 Ohm	86 dB
Connector:	Ceramic 3-pole screw terminal		
Enclosure:	ABS (fire rated)		
Color:	White (RAL 9010)		
Dimensions (H x Dia):	254x185 mm (10x7.3 in)		
Net weight:	3 kg (6.6 lb)[4]		
Shipping weight:	9 kg (19.8 lb)		
Support hardware:	Two (2) pendant suspension cables		
Operating temperature:	-25° C to +55° C (-13° F to +131° F)		
Storage and transport temperature:	-40° C to +70° C (-40° F to 158° F)		
Relative humidity:	<95%		
Approvals:	UL1480-6, UL1480A, CSA C22.2, CSA 22.1, CE		

[1]Full-space measurement.

[2]Rated power handling continuous pink noise

[3]At 1 kHz

[4]Without included suspension cable

	Pendant Suspension Cable
Material:	Steel wire rope
Working load limit:	10 kg (22 lb)
Length:	4.57 m (15 ft.)
Approvals:	UL2442

7.1 Dimensions

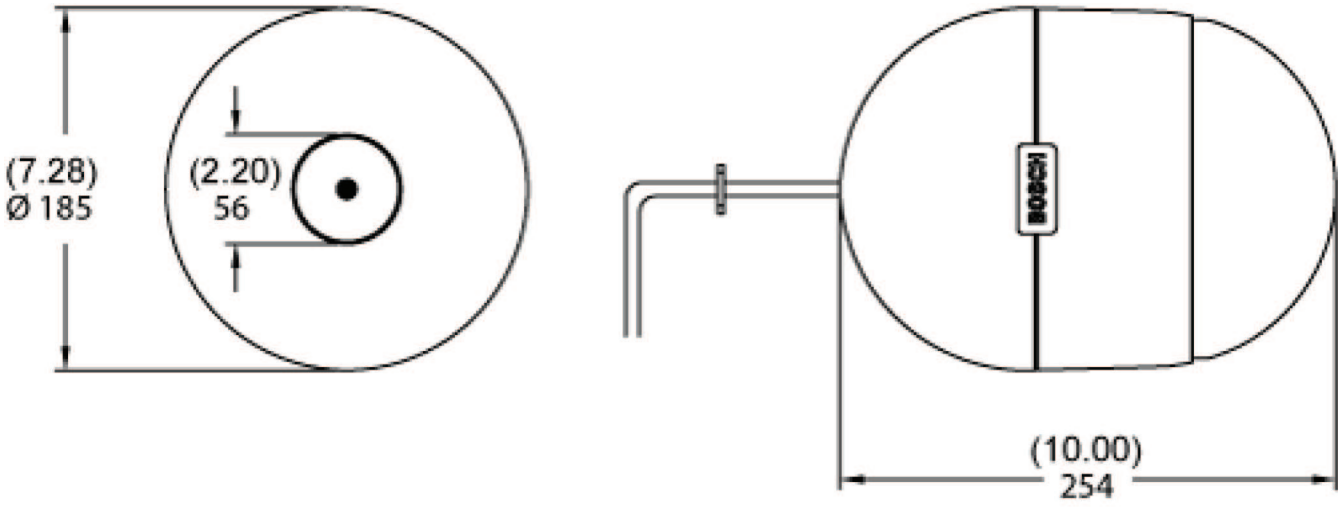


Figure 7.1: Dimensions in mm / (inch)

7.2 Circuit diagram

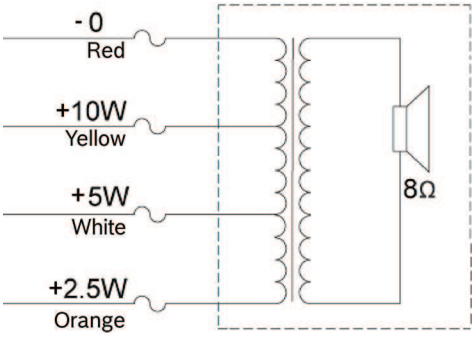


Figure 7.2: Circuit diagram

7.3 Frequency response and impedance

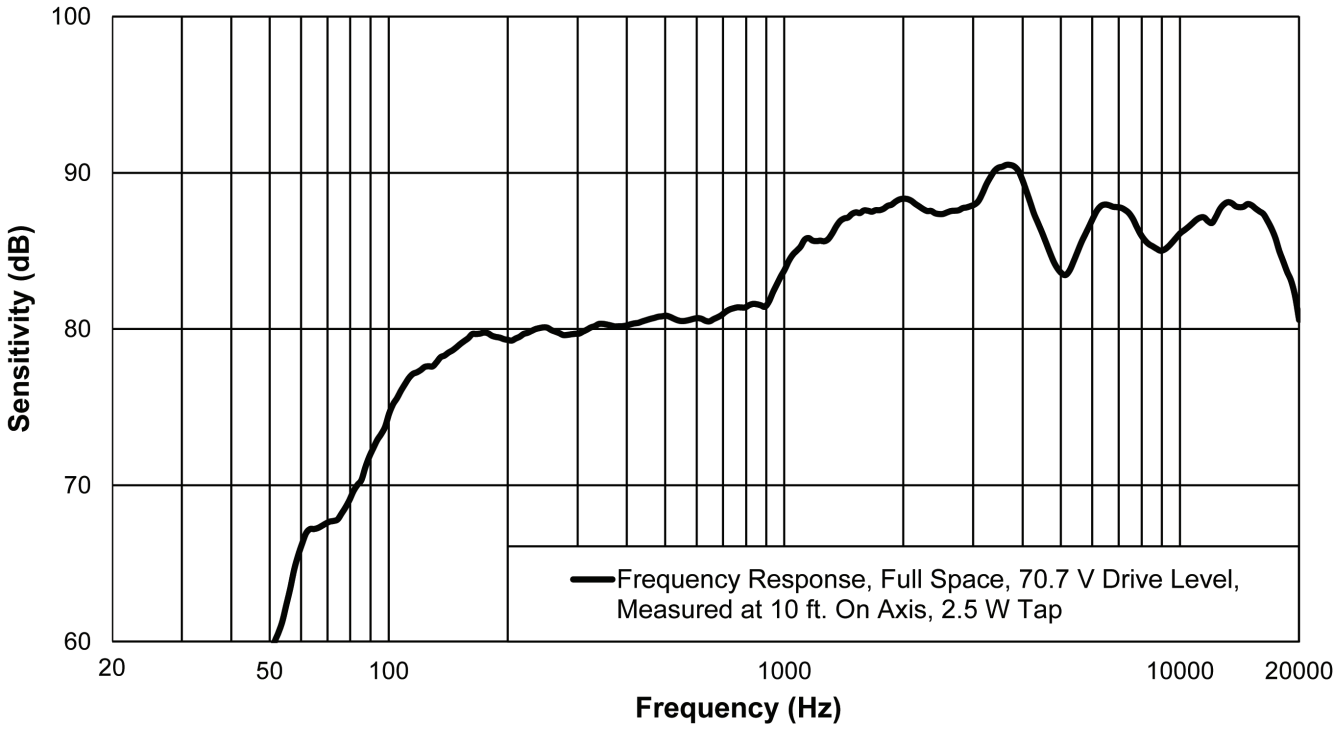


Figure 7.3: Frequency response

7.4 Polar diagram

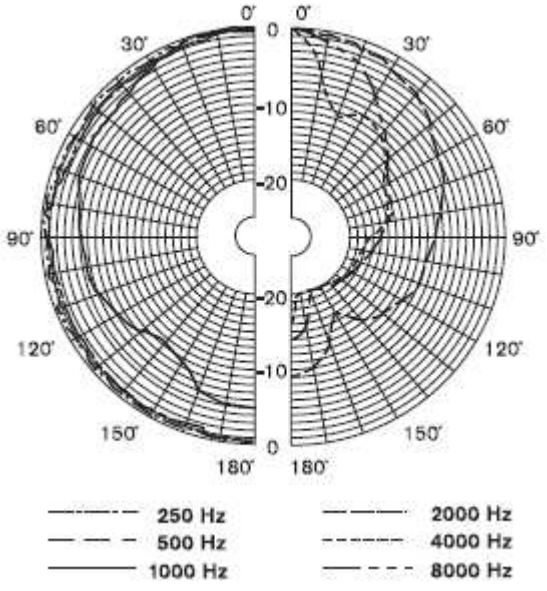


Figure 7.4: Polar diagram

7.5 Coverage

When multiple speakers are installed, it is recommended that the -6 dB coverage angles be used to create an overlapping coverage pattern.

Directional characteristics at -3 dB: 75°

Directional characteristics at -6 dB: 120°

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