



RoomMatch® Utility Distributed Loudspeaker System

DESIGN GUIDE



Product Specifications

Loudspeaker Model	Bandwidth (+/- 3 dB)	Coverage ¹ (H x V)	Power Handling (watts, long-term)	Power Handling (watts, peak)	Max SPL (1 m)
RMU208	80 - 16 kHz	90° x 60°	300 W	1200 W	119 dB
RMU206	90 - 16 kHz	120° x 60°	200 W	800 W	115 dB
RMU108	90 - 16 kHz	90° x 60°	200 W	800 W	114 dB
RMU105	100 - 16 kHz	100° x 100°	100 W	400 W	110 dB

¹With the exception of the RMU105, all products feature a rotatable waveguide.

Overview

The purpose of this document is to provide quick and easy guidelines for simple distributed systems using Bose® RoomMatch Utility (RMU) products. This is limited to general spacing rules and is not intended for designing of performance venue applications.

RoomMatch Utility loudspeakers are 2-way point-source designs that feature Bose EMB2 compression drivers for outstanding sound quality and consistent mid/high sonic character. These models are intended for high-quality foreground music, under-balcony, zone-fill and vocal-range floor monitor applications.

System Design Requirements

There are three key design criteria to address in any distributed system application:

- 1. Loudness**
What sound pressure level (SPL) is required for this application?
- 2. Frequency Response**
What bandwidth is required for the customer's program material? In some cases, additional bass speakers may be used to extend the low frequency response of the system.
- 3. System Coverage**
What is the loudspeaker spacing and aiming to provide consistent level and tonality in the listening area?

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Loudness and Response

Achieving the correct loudness and frequency response is the ideal place to start. The system performance chart below simplifies the process by helping in the selection of the right loudspeaker for the application. The SPL performance indicated in the chart is based on typical commercial and retail environments with a reverberation time of approximately one second. The quantity of loudspeakers in the room will affect the system SPL and is based on the suggested spacing shown in the system coverage section.

RMU Series System Performance

Model	RMU208	RMU206	RMU108	RMU105
Bandwidth +/- 3 dB	80-16 kHz	90-16 kHz	90-16 kHz	100-16 kHz
Typical SPL 8 Ω	102-112 dB	97-104 dB	98-105 dB	93-99 dB
Typical SPL¹ 70V-100 W	97-107 dB	94-101 dB	95-102 dB	93-99 dB
Typical SPL¹ 70V-40 W	93-103 dB	90-97 dB	91-98 dB	89-95 dB

¹With use of accessory transformer kit.

Supplemental Bass

If the desired loudspeaker does not provide adequate low frequency response, additional bass loudspeakers can be added to provide the additional low frequency bandwidth and SPL.

The chart below lists the number of RMUs which can be paired with Bose bass modules, assuming the maximum acoustic output for each of the loudspeakers.

RMU Pairing with Bose Bass Modules

Model	RMU105	RMU108	RMU206	RMU208
Panaray® MB4	3	2	1	
MB12	10	5	5	1
MB24				4

System Coverage

Achieving consistent tonal response is a result of good mid/high frequency coverage in the direct sound field. The direct sound field can be understood as the sound energy arriving at the listener directly from the loudspeaker without the effects of room reverberation or reflections. The following chart shows the recommended lateral spacing and downward pitch for each surface-mounted RMU loudspeaker.

Recommended Spacing and Aiming

Speaker	Height	Spacing	Pitch
RMU208	3 m (10 ft)	6 m (20 ft)	-10°
	4 m (13 ft)	6 m (20 ft)	-30°
	5 m (16 ft)	7 m (23 ft)	-30°
	6 m (20 ft)	7 m (23 ft)	-40°
RMU206	3 m (10 ft)	8 m (26 ft)	-15°
	4 m (13 ft)	8 m (26 ft)	-30°
	5 m (16 ft)	8 m (26 ft)	-40°
	6 m (20 ft)	8 m (26 ft)	-45°
RMU108	3 m (10 ft)	6 m (20 ft)	-10°
	4 m (13 ft)	6 m (20 ft)	-30°
	5 m (16 ft)	7 m (23 ft)	-30°
	6 m (20 ft)	7 m (23 ft)	-40°
RMU105	3 m (10 ft)	6 m (20 ft)	-10°
	4 m (13 ft)	7 m (23 ft)	-20°
	5 m (16 ft)	8 m (26 ft)	-30°
	6 m (20 ft)	8 m (26 ft)	-40°

Spacing and Coverage Notes

1. The lateral spacing helps maintain adequate high frequency coverage between the loudspeakers.
2. The pitch ensures adequate high frequency underneath the loudspeakers, starting approximately 2 m (6 ft) from the mounting surface. Higher mounting heights require more downward pitch to maintain coverage near the mounting location.
3. The typical “throw distance” is approximately 8 to 10 m (20 to 30 ft). This is equivalent to +/-3 dB variation in the direct field high frequency response.

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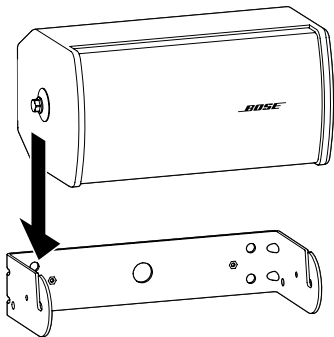


Mounting Options

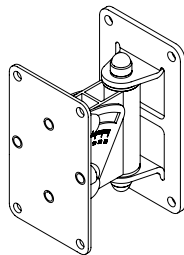
Bose provides two options for mounting the RMU series loudspeakers. A U-bracket is included with each RoomMatch Utility loudspeaker for ceiling or wall installation. These brackets allow rotation in a single direction or axis and may be positioned horizontally or vertically for wall-mounted installations.

The optional RMUBRKT1 pan-and-tilt bracket attaches to inserts on the back of the RMU loudspeakers for use on a vertical wall surface. It allows for both pitch and yaw adjustment.

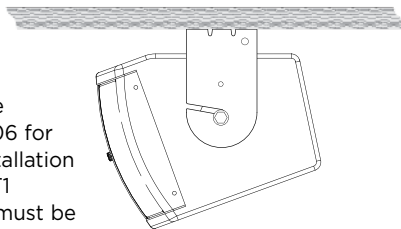
A practical exception relates to the RMU206, a model designed for low-profile ceiling or under-balcony installation. The RMUBRKT1 pan-and-tilt bracket must be used if the RMU206 is mounted against a vertical wall surface.



RoomMatch Utility loudspeakers ship with a U-bracket for wall or ceiling mounting.



The optional RMUBRKT1 pan-and-tilt bracket attaches to the RMU speaker with supplied hardware to allow for both pitch and yaw adjustments.



The U-bracket can be used with the RMU206 for horizontal ceiling installation *ONLY*. The RMUBRKT1 pan-and-tilt bracket must be used for vertical wall mounting.

RMU Mounting Options

	Bracket	Orientation	Pitch	Yaw
RMU208	U-bracket (included)	Horizontal	±110°	N/A
		Vertical	N/A	±110°
	RMUBRKT1 Pan-and-Tilt	Horizontal	0 - 30°	±15°
		Vertical	0 - 15°	±60°
RMU206	U-bracket (included)	Horizontal	0 - 45°	N/A
		Vertical	N/A	N/A
	RMUBRKT1 Pan-and-Tilt	Horizontal	0 - 30°	±20°
		Vertical	0 - 20°	±50°
RMU108	U-bracket (included)	Horizontal	±110°	N/A
		Vertical	N/A	±110°
	RMUBRKT1 Pan-and-Tilt	Horizontal	0 - 30°	+20° to -30° or +30° to -20°
		Vertical	0 - 25°	±55°
RMU105	U-bracket (included)	Horizontal	±110°	N/A
		Vertical	N/A	±110°
	RMUBRKT1 Pan-and-Tilt	Vertical (only)	0 - 25°	±55°

Other Accessories

Two optional transformer kits are available for use with 70V and 100V high-impedance system applications. The transformer replaces the loudspeaker's standard input panel. Either version listed below can be used on any of the RMU models:



- **RMUXF100 – 100-watt 70/100V transformer kit**
Wattage Taps: 70V - 12.5 / 25 / 50 / 100 W
100V - 25 / 50 / 100 W
- **RMUXF40 – 40-watt 70/100V transformer kit**
Wattage Taps: 70V - 2.5 / 5 / 10 / 20 / 40 W
100V - 5 / 10 / 20 / 40 W

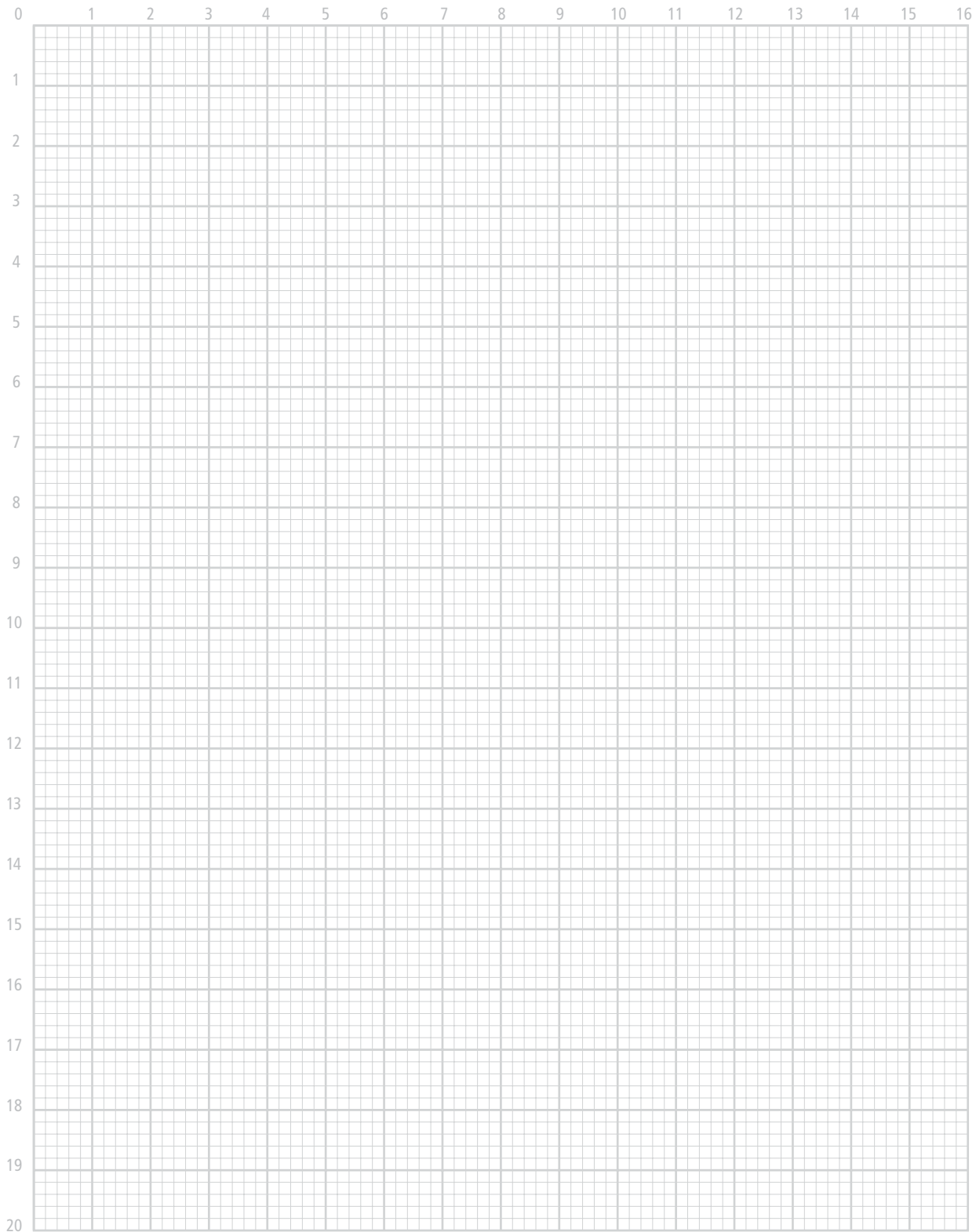
Additional technical data, CAD files and installation guides may be found at pro.bose.com.

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Project Name: _____

Contact: _____ Date: _____



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