

# CM82-BGM

## In-Ceiling Speaker

Preliminary Technical Information for System Engineers



### Preliminary Specifications: CM82-BGM

#### Tile bridge included

System Type	8-inch coaxial, in-ceiling, ported (64-watt transformer for 25/70.7/100-volt or transformer bypass)		
Impedance (nominal) <sup>1</sup>	16 ohm		
Sensitivity dB @ 2.83 V/1 m	86.0 dB		
Sensitivity dB @ 1 W/1 m <sup>2</sup>	89.0 dB		
Frequency Response (-3 dB) <sup>3</sup>	70 Hz - 18 kHz		
Frequency Response (-10 dB) <sup>3</sup>	55 Hz - 22 kHz		
Max. Program Power <sup>4</sup>	128 W		
Max. Continuous Power RMS <sup>5</sup>	64 W		
Max. Power SPL @ 1 m <sup>6</sup>	107.0 dB		
Coverage Angle (-6 dB @ 2 kHz)	105°		
Coverage Angle (-6 dB @ 10 kHz)	40°		
Coverage Angle (averaged 2-10 kHz)	95°		
Directivity Factor (Q)	5.4 (averaged 100 Hz - 10 kHz) ; 7.2 (2 kHz)		
Directivity Index (DI)	5.5 dB (averaged 100 Hz - 10 kHz) ; 8.6 dB (2 kHz)		
Tap Selector	Six-position rotary switch with transformer bypass position		
Transducer - Low-Frequency Driver	203 mm (8.0 in.) Polypropylene cone, butyl rubber surround		
Transducer - High-Frequency Driver	25 mm (1.0 in.) Silk dome tweeter		
Low-Frequency Voice Coil	25.4 mm (1.0 in.)		
Crossover Frequency	3.0 kHz		
Network Type: Low Pass	12 dB per octave, 2nd order		
Network Type: High Pass	12 dB per octave, 2nd order		
Enclosure Material	Drawn steel backcan with ABS baffle		
Grille	Painted steel		
Inputs	Ceramic terminal connector		
Colors	Black or white		
Backcan Diameter	245.6 mm (9.67 in.)		
Backcan Height	203.2 mm (8.0 in.)		
Visible Diameter	298.5 mm (11.75 in.)		
Visible Height	8.6 mm (0.34 in.)		
Mounting Hole Diameter	266.7 mm (10.50 in.)		
Min - Max Ceiling Thickness	0.9 mm (0.035 in.) - 40.6 mm (1.6 in.)		
Weight	4.1 kg (9.0 lbs.)		
Shipping Weight	4.5 kg (10.0 lbs.)		
Packaging	One per box		
Included accessories	Tile bridge, UL-listed flex conduit clamp, paint shield		
Optional accessories	Pre-construction bracket (AC-CMEZ-6/8-PCB)		
Regulatory - UL	UL 1480 and 2043		
Regulatory - CE	Approved		
RoHS	Approved		
	Transformer Taps		

<sup>1</sup> Impedance listed per IEC 60268-5

<sup>2</sup> 1 W 1 m sensitivity determined using nominal impedance

<sup>3</sup> Frequency response measured in half or full space as dictated by speaker mounting configuration

<sup>4</sup> Max program power is 3 dB above max continuous power

<sup>5</sup> Continuous power rating, EIA-426-B test

<sup>6</sup> Max output based on max continuous power

70.7 V Output	100 V Output	25 V Output
64 W 107.0 dB	64 W 107.0 dB	8 W 98.0 dB
32 W 104.0 dB	32 W 104.0 dB	4 W 95.0 dB
16 W 101.0 dB	16 W 101.0 dB	2 W 92.0 dB
8 W 98.0 dB	8 W 98.0 dB	1 W 89.0 dB
4 W 95.0 dB		

### Preliminary Technical Information

- One 8.0 inch (203 mm) polypropylene woofer with butyl rubber surround and one 1.0 inch (25 mm) silk dome tweeter.
- BroadBeam Ring™ technology for mid-range clarity and ultra wide off axis performance.
- Easy-access six-position tap switch for 25/70.7/100-volt and transformer bypass settings allows for easy ordering, stocking and installation.
- Tuned port on baffle for added musicality and bass response down to 55 Hz (-10 dB).
- Reduced amplification costs and maximum efficiency of 89.0 dB sensitivity, 16 ohm impedance.
- Incorporates a painted steel grille for lasting durability.
- Adaptable to material thicknesses ranging from 0.035 inch (0.9 mm) to 1.6 inch (40.6 mm).
- UL 1480 and 2043 approved.
- High-quality black or white painted finish. Custom colors available.
- Included accessories: Tile bridge, UL listed 0.5-inch conduit clamp, paint shield.
- Optional accessories: Color-coded (green) pre-construction bracket (AC-CM6-8EZ-PCB).

### Description

The CM82-BGM is an 8-inch coaxial two-way blind-mount in-ceiling speaker which delivers true high-efficiency and performance across the operating bandwidth. By incorporating an 8-inch polypropylene driver with a butyl rubber surround and a 1-inch silk dome tweeter in a sealed drawn steel backcan with a tuned port, this speaker delivers maximum frequency response (55 Hz – 22 kHz, - 10 dB) in an integrated enclosure design.

Mounting hardware is included and features a constant-tension fixed-wing mounting system with a 21-gauge “full-metal” steel tile bridge ensuring rapid and secure installation in any sheetrock or drop-tile application. For easy ordering, stocking and installation, this series includes a color-coded (green) tile bridge and optional pre-construction bracket, as well as a six-position tap switch for 25-, 70.7- and 100-volt applications with a transformer bypass position.

## Applications

Developed specifically for paging and background music applications where cost, quality and fit are paramount, the CM82-BGM is ideal for hotels, education, hospitals, retail stores, restaurants, airports, churches or boardrooms. Indeed, the entire CM-BGM series is engineered for installations where high-efficiency, added bass response and rapid installation are critical attributes. For applications requiring additional bass response, SoundTube's CM1001d subwoofer provides true low-end response down to 50 Hz.

## Patented SoundTube Technologies

SoundTube Entertainment and the MSE Audio Group constantly develop new technologies which enhance audio product performance. SoundTube Entertainment innovations are protected by multiple U.S. and international patents, which explicitly cover SoundTube dome, enclosure and dispersion technologies. The MSE Audio Group actively defends its patents in order to protect SoundTube resellers and end-users.

## Technical Data and Specification Tools

### Technical Data

SoundTube Entertainment strives to provide complete and effective technical information and data to dealers, engineers and designers. All data are available from SoundTube Entertainment or at [www.soundtube.com](http://www.soundtube.com).

Technical data and downloads include:

EASE™ data – 3-D polar plots.

EASE™ Address – 2-D modeling for distributed systems

Autodesk® Revit® software

Tech Sheets – Technical information and architectural specs for system engineers

SoundTubeSPEC™ – Proprietary speaker placement software

## Independent Data

### Acquisition and Verification

All data for SoundTube speakers is independently collected from and verified by NWAALabs ([www.nwaalabs.com](http://www.nwaalabs.com)) using their proprietary MACH testing system. All data is collected and analysed according to ASTM, ISO and AES standards using EASERA, TEF and MLSSA. Full balloon data including both phase and magnitude is compiled into a variety of formats including EASE 4.x, GLL and CLF.

### Architectural Specifications

The loudspeaker shall consist of one 203 mm (8.0 in.) low-frequency transducer and one 25 mm (1.0 in.) high-frequency transducer with a frequency-dividing network installed in a ported enclosure. The low-frequency voice coil diameter shall be 25.4 mm (1.0 in.). The low-frequency transducer shall have a polypropylene cone material with a butyl rubber surround. The high-frequency transducer shall be constructed of silk material using a balanced-dome configuration.

Performance specifications of a typical production unit shall be as follows: Useable frequency range shall extend from 55 Hz - 22 kHz (-10 dB). The loudspeaker shall be available with selectable 25/70.7/100-volt and transformer bypass tap switch. The frequency dividing network shall have a crossover frequency of 3.0 kHz. Rated power capacity of the components and network shall be at least 64 watts continuous RMS and conform to EIA-426-B testing. Maximum continuous output at 1 meter shall be at least 107.0 dB.

The backcan shall be constructed of galvanized steel with an ABS plastic baffle. The grille shall be constructed of painted steel. Shipped complete with UL-listed flex conduit connector, color coded tile bridge (to match color-coded backcan), grille, and paint shield, the integrated in-ceiling speaker is engineered for high performance and rapid installation in plenum spaces. The unit incorporates three additional attachment points for added security, or where

required by code.

Installation for the speaker shall be by two-screw blind-mount constant-tension fixed-wing assembly and shall attach to ceiling thicknesses ranging from 0.04 inches to 1.60 inches. The external wiring shall be via 4-position ceramic terminal strip, accepting up to 8 gauge wire.

The maximum backcan dimension shall be no more than 203.2 mm (8.0 in.) in height by 245.6 mm (9.67 in.) in diameter. The maximum visible dimensions shall be no more than 8.6 mm (0.34 in.) in height by 298.5 mm (11.75 in.) in diameter. The unit is factory preset to the 64-watt setting in the 70.7-volt operating mode, with a tap switch located on the front baffle.

The system shall be the SoundTube CM82-BGM for both low- and high-impedance applications.

## SoundTube Entertainment

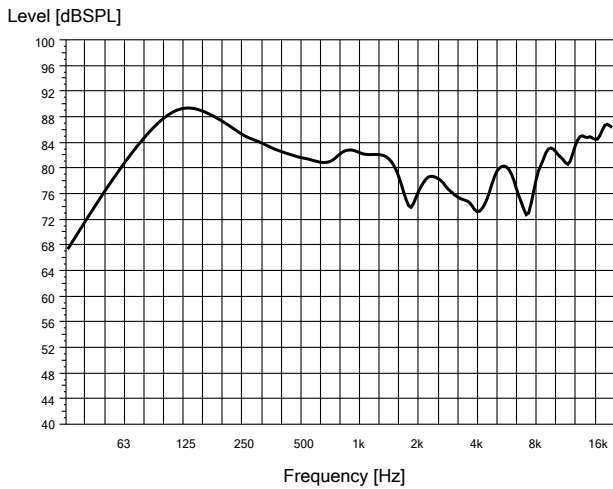
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Toll Free 800.647.TUBE  
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All SoundTube products come with a 5-year limited warranty.

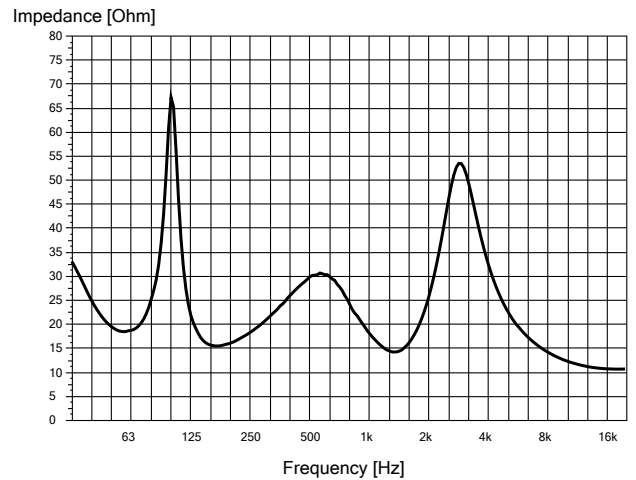
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### Graphs

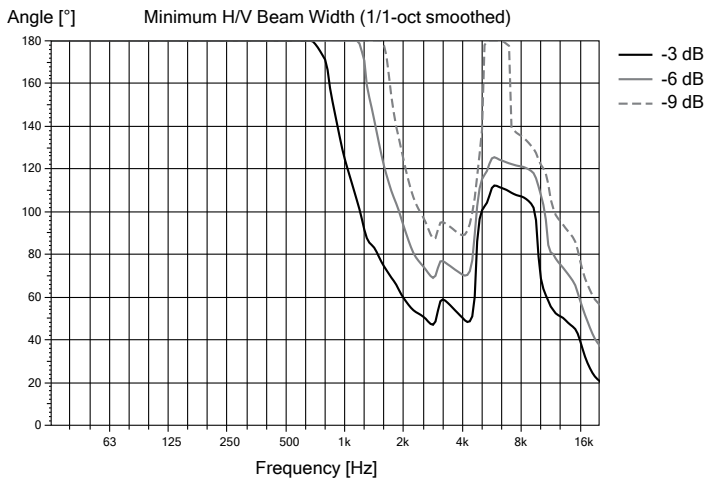
#### Frequency Response



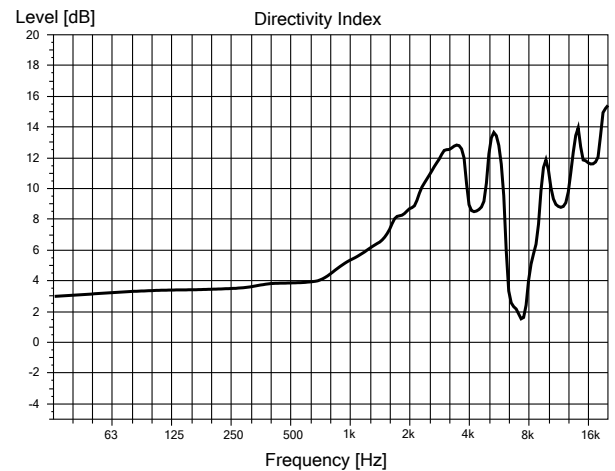
#### Phase/Impedance Reponse



#### Vertical Beamwidth



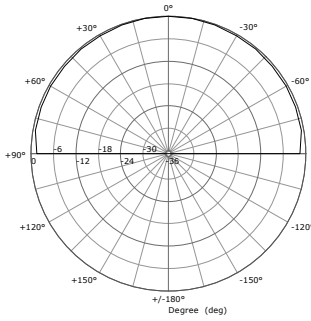
#### Directivity Index (DI)



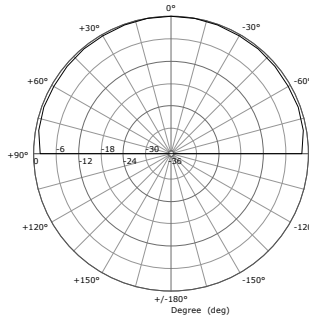
### Polar Plots

— Horizontal  
- - - Vertical

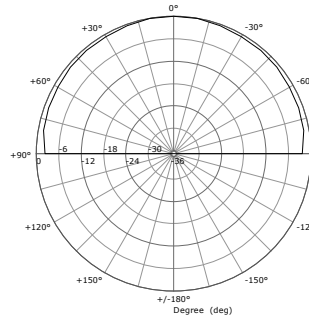
125 Hz



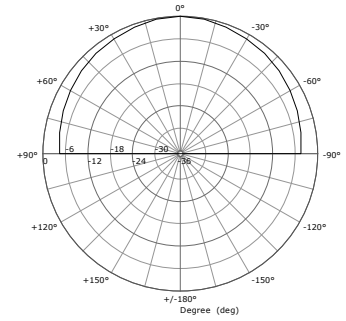
250 Hz



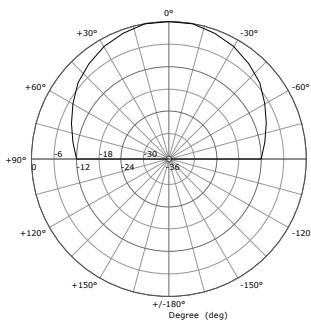
500 Hz



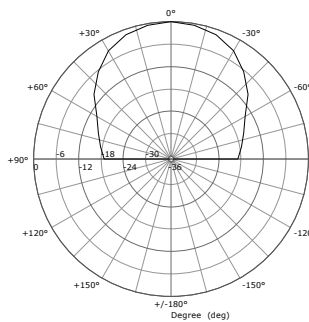
1,000 Hz



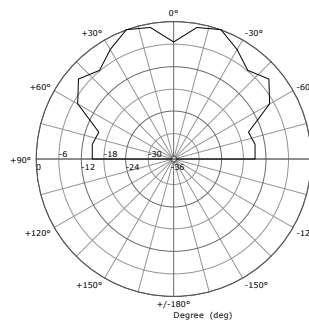
2,000 Hz



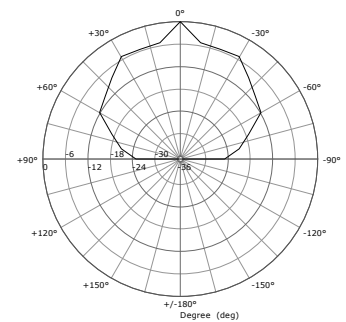
4,000 Hz



8,000 Hz

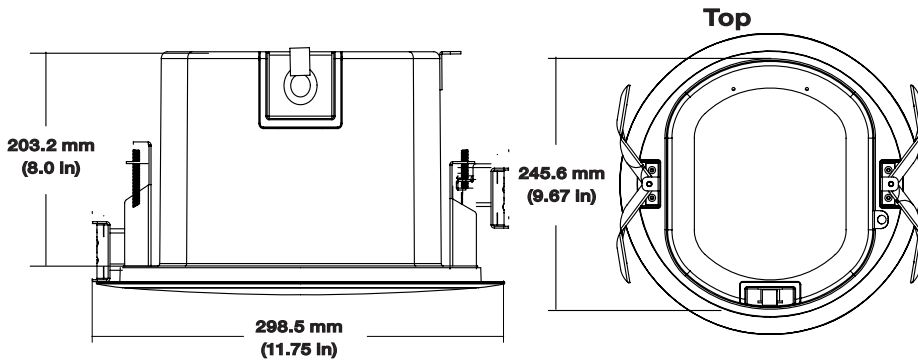


10,000 Hz

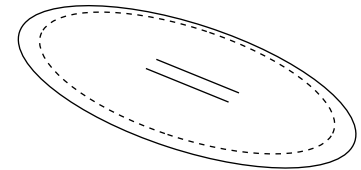


Technical data, EASE™ plots, SoundTubeSPEC™ software and product downloads available at [www.soundtube.com](http://www.soundtube.com)

### Mechanical Drawings

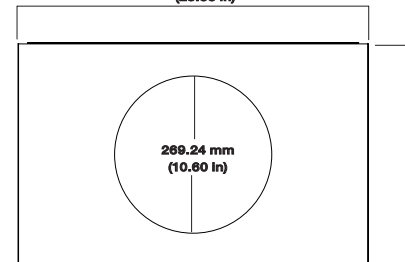


### Included Accessories



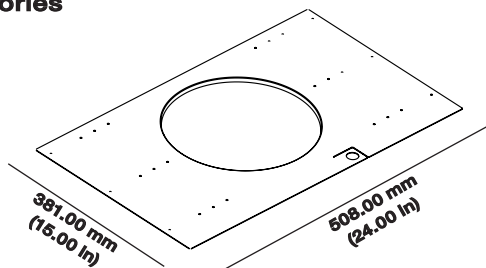
Paint Mask

598.25 mm (23.55 in)



Tile Bridge

### Optional Accessories



Pre-Construction Bracket (AC-CM6-8EZ-PCB)

SoundTube Entertainment manufactures a complete line of speakers for:  
**Open-Ceiling • In-Ceiling • Surface-Mount • Outdoor • Sound-Focusing**

All SoundTube products are designed and engineered in the USA.