



Specifications: CM590i

Tile bridge included

System Type	5.25" Coax, in-ceiling, ported (33 Watt transformer for 25/70.7/100 Volt or voice coil/8 Ohm direct)
Frequency Response (-3 dB) ¹	77 Hz - 22 kHz
Low Frequency (-10 dB) ¹	69 Hz - 20 kHz
Max. Program Power	160 Watts
Max. Continuous Power RMS	80 Watts
Max. UL Power Rating ³	55 Watts
Max. SPL dB @ 1 M	109 dB
Sensitivity dB @ 1W/1M ⁴	90 dB
Impedance (nominal)	8 Ohm (nominal value)
Coverage Angle (-6 dB @ 500 Hz)	180° (average)
Coverage Angle (-6 dB @ 4 kHz)	102° (average)
Directivity Factor (Q)	7.7 (Averaged 100 Hz - 10 kHz); 11.17 @ 2 kHz
Directivity Index (DI)	8.04 dB (Averaged 100 Hz - 10 kHz); 10.48 dB @ 2 kHz
Tap Selector	6-Position rotary switch with voice coil/8 Ohm direct

Transformer Taps

70.7 V	Output	100 V	Output	25 V	Output
33 W	105 dB	33 W	105 dB	5 W	97 dB
17 W	102.5 dB	17 W	102.5 dB	2.5 W	94 dB
9 W	99.5 dB	9 W	99.5 dB	1.3 W	91 dB
6 W	98 dB	6 W	98 dB	0.63 W	88 dB
3 W	95 dB				

Transducers

Low Frequency Driver	1 x 133 mm (5.25 in) Polypropylene cone, butyl rubber surround
High Frequency Driver	25 mm (1.0 in) Convex aluminum horn-loaded tweeter
Low Frequency Voice Coil	25 mm (1.0 in)
Crossover Frequency	3 kHz

Network Type

Low Pass	N/A
High Pass	12 dB per octave, 2nd order
Enclosure Material	Drawn aluminum backcan with ABS baffle
Motor Board	Cast aluminum
Grille	Iridite-plated steel with powder-coat finish
Inputs	4 Pin, 5 mm Euroblock for individual or daisy chain connection
Colors	Black or white
Backcan Diameter	197 mm / 7.75 in
Backcan Height	219.2 mm / 8.63 in
Visible Diameter	271.9 mm / 10.71 in
Visible Height	24.5 mm / .96 in
Weight	3.4 kg / 7.5 lbs
Shipping Weight	10.7 kg / 23.5 lbs (2 per box, includes tile bridges)

Accessories

Included	Tile bridge, Euroblock connector, installation aid, paint mask & conduit plate
Optional	Pre-Construction Bracket (AC-CM5-PCB), Junction Box (AC-CM-JBOX)
Packaging	2 Per box, can ship as single

¹ Frequency response is measured in half space and includes a low-frequency peak > +3 dB.

² Continuous power rating, EIA-426-B test.

³ UL testing specifies band-limited pink noise over the indicated frequency spectrum.

⁴ 2.83 Volts at a distance of 1 meter.

SoundTube continually develops new product innovations and improvements. Updates to existing products without prior notice are an example of SoundTube's drive for constant improvement.

Key Features

- High power output (109 dB) for longer throw and higher SPL requirements.
- One 133 mm (5.25 in) polypropylene woofer and one 25 mm (1.0 in) horn-loaded convex aluminum dome tweeter mounted to a proprietary cast-aluminum HP5™ baffle & heat sink.
- 90 dB Average sensitivity offers high output capabilities and reduced amplification costs.
- Rapid installation blind-mount, fixed-wing mechanism with constant tension design affixing to ceiling thickness tolerances ranging from 6.4 mm (0.25 in) to 42.9 mm (1.69 in).
- Magnetic grille attachment with safety cable.
- Easy access 6-position selectable tap switch for 25, 70.7 & 100 Volt applications with voice coil/8 Ohm direct simplifies ordering and inventory tracking.
- UL 1480 rev. 5 & 2403, CE (EMC Directive 89/366/EEC, EN55020, EN55013), MILSPEC 810 or IEC529 approval pending.
- Included accessories: Tile bridge, Euro-block connector, installation aid, paint mask and conduit plate.
- Optional accessories: Pre-Construction Bracket and Junction Box.
- High quality black or white paint finish. Custom paint colors optional.

Description

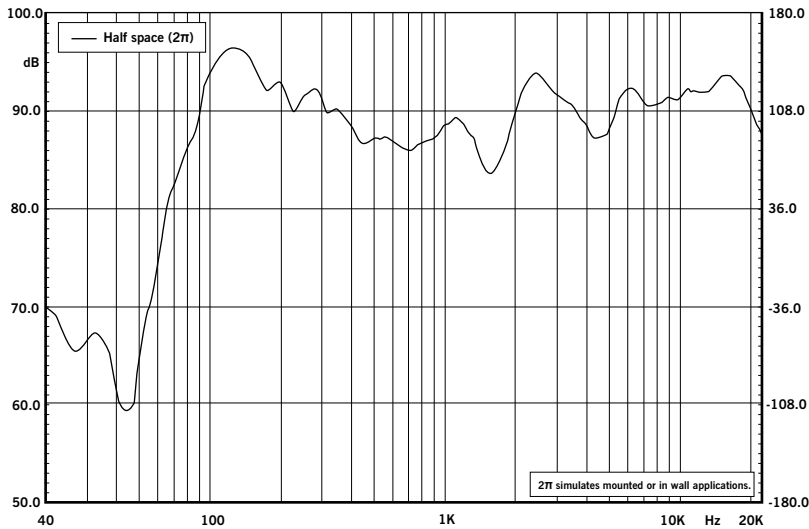
The CM590i is a high-powered 5.25" 2-way loudspeaker in a ported in-ceiling enclosure design. The CM590i incorporates a low-profile grille, proprietary HP5™ motor-board and 6-position tap switch with voice coil/8 Ohm direct. A tile bridge is included and the speaker features a fast-action SpeedWing™ for easy and secure installation.

Applications

Engineered for high-SPL and effective low-end response (69 Hz @ -10 dB), the CM590i delivers consistent high-performance music and paging for applications requiring longer throw or higher volume above the existing ambient noise level. The CM590i is ideal for in-ceiling sound reinforcement/PA in applications with high ambient noise levels including casinos, warehouses, airports, transportation & shipping centers, schools, gyms, arenas and stadiums. For additional bass down to 43 Hz (-10 dB) the CM801i subwoofer may be used.



Frequency Response



Patented SoundTube Technologies

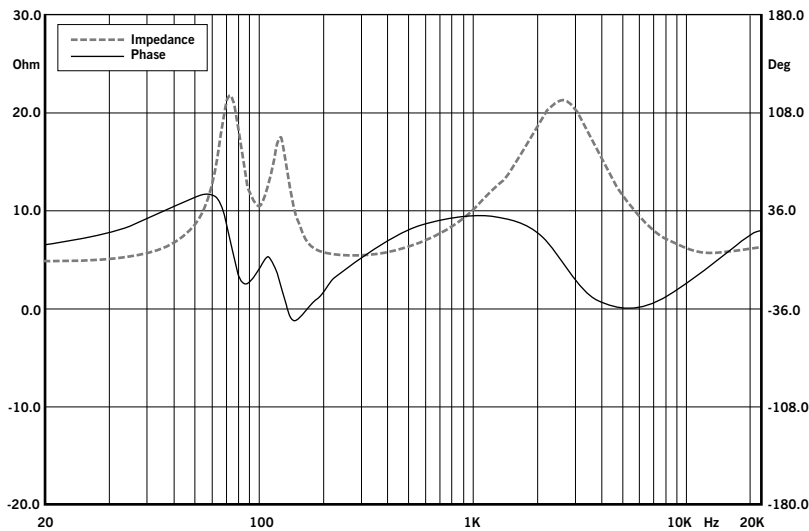
SoundTube Entertainment is consistently developing new technologies that enhance audio product performance. SoundTube Entertainment innovations are protected by multiple U.S. and international patents, which explicitly cover SoundTube dome, enclosure, mounting and dispersion technologies. SoundTube Entertainment actively defends its patents in order to protect SoundTube resellers and end-users.

Technical Data and Specification Tools

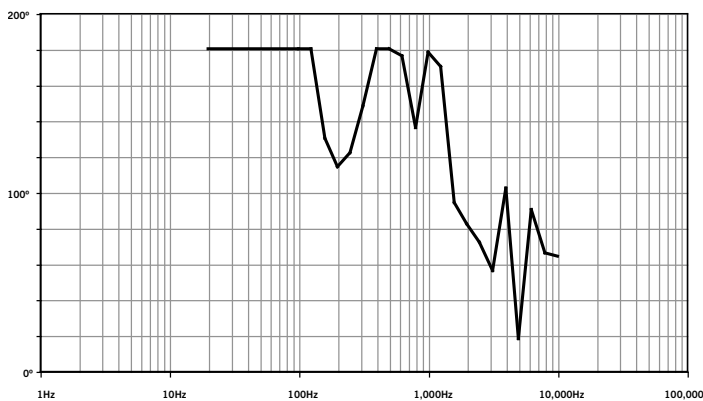
Technical Data

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.

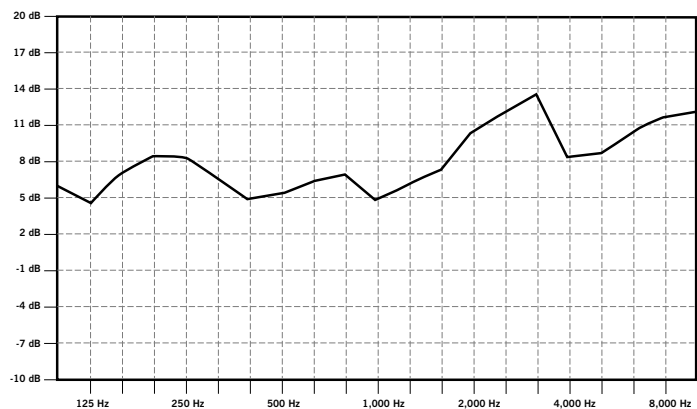
Phase/Impedance Response



Beamwidth (-6 dB)



Directivity Index (DI)





Data Acquisition

All performance data acquired at SoundTube's Technical Measurement Center (TMC) are analyzed using a variety of standard measurement techniques, including Measured Length Sequence (MLS) and Time Delay Spectrometry (TDS). Performance, development and data acquisition tools include: Gold Line TEF 20, CLIO, LMS, LEAP, and proprietary modeling software. EASE™ data are acquired through an automated TEF 20/Outline/EASE™ interface.

EASE™ Data – 3-D polar plots.

SoundTubeSPEC™ – Proprietary SoundTube speaker placement software.

Architectural Specifications

The loudspeaker shall consist of a 133 mm (5.25 in) low-frequency transducer and a 25 mm (1 in) high-frequency transducer with a frequency-dividing network installed in a ported enclosure. The low-frequency voice coil diameter shall be 25 mm (1 in).

Performance specifications of a typical production unit shall be as follows:

Useable frequency response shall extend from 69 Hz – 22 kHz (-10 dB, half space, no external equalization). Measured sensitivity (2.83 Volt input, 1 meter) shall be at least 90 dB. The speaker shall have a nominal impedance of 8 Ohms and shall be available for 25/70.7/100 Volt modes with voice coil/8 Ohm direct. The frequency-dividing network shall have a crossover frequency of 3 kHz with a slope of 12 dB per octave (second order) for the high-pass filter. Rated power capacity shall be at least 80 Watts continuous power (RMS), and conforms to EIA-426-B testing. Maximum continuous output at 1 meter shall be 109 dB.

The low-frequency transducer shall have a polypropylene cone with butyl rubber surround. The high-frequency transducer shall be constructed of aluminum material and incorporate a high-SPL horn.

Installation for the CM590i shall be by 2-screw, blind-mount, constant-tension winged assembly and shall attach to ceiling thickness tolerances ranging from 6.4 mm (0.25 in) to 42.9 mm (1.69 in). The fixed-wing assembly shall be

constructed of glass-filled ABS material. The external wiring input connector shall be a 4-pin, 5 mm Euroblock for 8 Ohm or distributed systems and shall accept from 10 – 22 gauge wire.

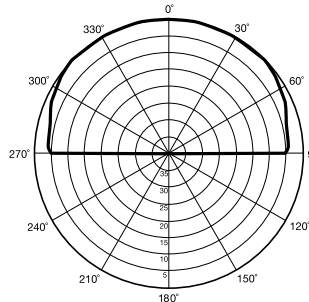
The maximum backcan dimensions shall be no more than 197 mm (7.75 in) in height by 219.2 mm (8.63 in) in diameter. The maximum visible dimensions shall be no more than 24.5 mm (0.96 in) in height by 271.9 mm (10.71 in) in diameter. The backcan shall be construction of aluminum and affixed to an ABS baffle.

The system shall include a 16-gauge galvanized steel support backing plate (tile bridge) to reinforce the ceiling material and tile support rails. The maximum tile bridge dimensions shall be no more than 600.1 mm (23.61 in) in length by 323.9 mm (12.75 in) in width and 11 mm (0.41 in) in thickness with a 228.6 mm (9.0 in) diameter cutout for speaker mounting.

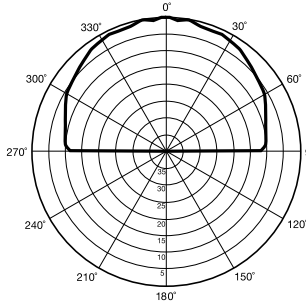
The grille shall be constructed of an ABS bezel and iridite-plated, powder-coated steel for lasting performance. The affixed grille and bezel shall be mounted to the speaker enclosure (backcan) via neo-

Polar Plots

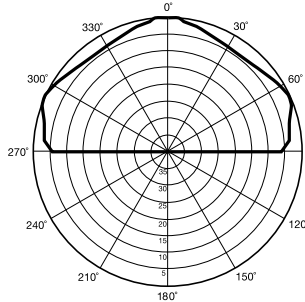
125 Hz



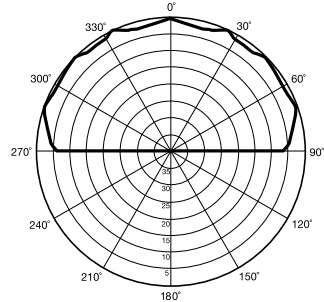
250 Hz



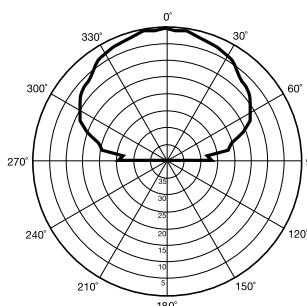
500 Hz



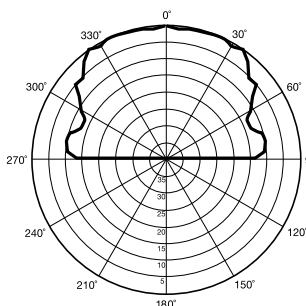
1,000 Hz



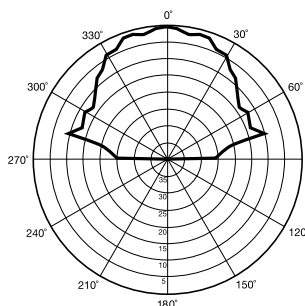
2,000 Hz



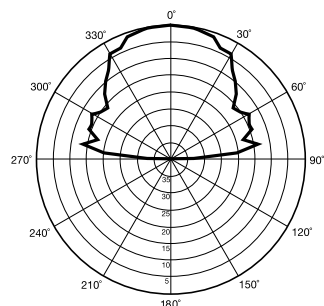
4,000 Hz



8,000 Hz



10,000 Hz



CM590i

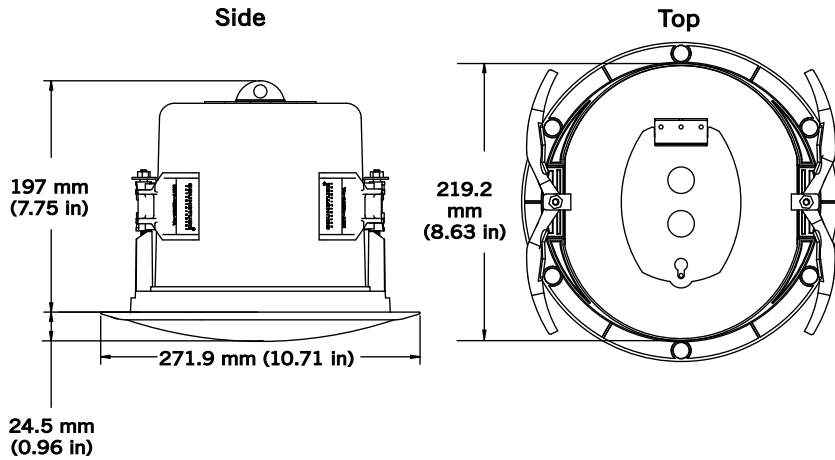
In-Ceiling Speaker

Preliminary Technical Information for System Engineers



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Mechanical Drawings



dymium magnets and include a safety strap. Also included are a paint mask for in-field painting and an installation aid that serves as a hand-hold for installation.

The CM590i has an optional Pre-Construction Bracket (AC-CM5-PCB) that shall be compatible with an optional Junction Box (AC-CM-JBOX). An 18-gauge wire whip and Euroblock connector shall be included with the Junction Box. The maximum dimensions of the Pre-Construction Bracket with Junction Box shall be no more than 635 mm (25 in) in length by 381 mm (15.0 in) in width and 128 mm (5.0 in) thickness with a 228.6 mm (9.0 in) cutout for speaker mounting.

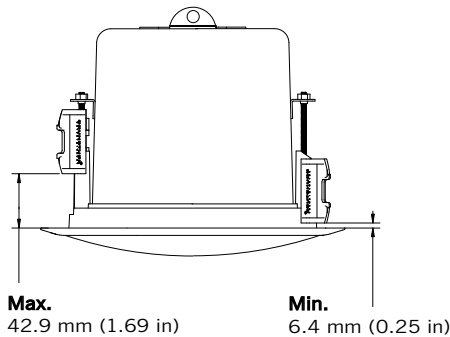
The system shall be the SoundTube CM590i with mounting hardware for both low and high impedance applications.

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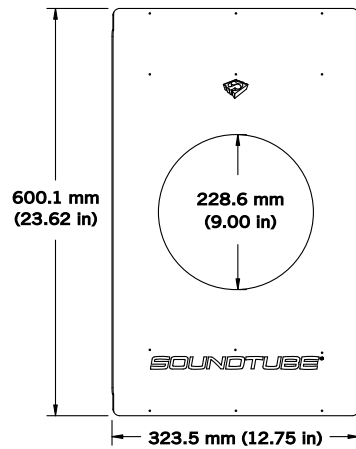
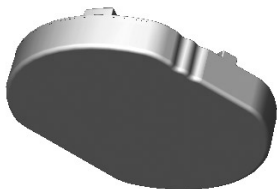
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All SoundTube products come with a 5-year limited warranty.

Included Accessories



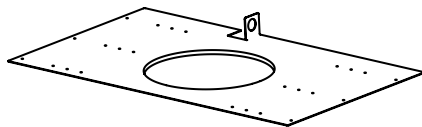
Fixed Wing Mounting System



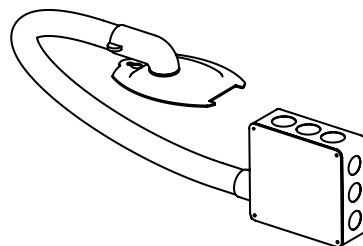
Tile Bridge

Paint Mask

Optional Accessories



Pre-Construction Bracket (AC-CM5-PCB)



Junction Box (AC-CM-JBOX)

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.

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