

# SM590i-II-WX

Surface-Mount Speaker  
Preliminary Technical Information



**SOUNDTUBE**  
ENTERTAINMENT



## Preliminary Specifications: SM590i-II-WX

### Mounting hardware included

System Type	5.25" Coax, surface mount, ported, high output (64 Watt transformer for 25/70.7/100 Volt or transformer bypass)
Impedance (Nominal)	8 ohm
Sensitivity dB @ 2.83V / 1 M	87 dB
Sensitivity dB @ 1 W / 1 m <sup>3</sup>	87 dB
Frequency Response (-3 dB) <sup>1</sup>	100 Hz - 22 kHz
Frequency Response (-10 dB) <sup>1</sup>	69 Hz - 22 kHz
Max. Program Power	160 W
Max. Continuous Power RMS <sup>2</sup>	80 W
Max. SPL dB @ 1 m	106 dB
Coverage Angle (-6 dB @ 2 kHz)	90° horizontal / 90° vertical
Coverage Angle (-6 dB @ 10 kHz)	65° horizontal / 65° vertical
Coverage Angle (Avg. 2 to 10 kHz)	80° horizontal / 85° vertical
Aiming Angle (vertical)	0 - 18° upward / 0 - 29° downward
Aiming Angle (horizontal)	+/- 33°
Directivity Factor (Q)	5.69 (Averaged 100 Hz - 10 kHz); 9.3 @ 2 kHz
Directivity Index (DI)	6.0 dB (Averaged 100 Hz - 10 kHz); 9.7 dB @ 2 kHz
Tap Selector	Six-position rotary switch with transformer bypass
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 tweeter with tractrix profile horn
Low-Frequency Voice Coil	25 mm (1.0 in)
Crossover Frequency	3 kHz
Network Type: Low-Pass	N/A
Network Type: High-Pass	12 dB per octave, 2nd order
Enclosure Material	Injection-molded ABS
Motor Board	Cast aluminum
Grille	Powder-coated aluminum and WX material
Inputs	Four-pin, 5.08 mm Euroblock for individual or daisy chain connection
Colors	Black or white (Custom colors available)
Height	289.6 mm (11.40 in)
Width	212.3 mm (8.36 in)
Depth (Including Bracket)	266.2 mm (10.48 in)
Weight	4.3 kg (9.5 lbs)
Shipping Weight	5.0 kg (11.0 lbs)
Included Accessories	Safety cable with speaker mounting bolt, Euroblock connector, wall mount bracket and terminal weather boot
Optional Accessories	N/A
Packaging	One per box
Regulatory - IP	IP44 approved
Regulatory - CE	Approved
RoHS	Approved

### Transformer Taps

70.7 V	Output	100 V	Output	25 V	Output
64 W	105.0 dB	64 W	105.0 dB	8 W	96.0 dB
32 W	102.0 dB	32 W	102.0 dB	4.0 W	93.0 dB
16 W	99.0 dB	16 W	99.0 dB	2.0 W	90.0 dB
8 W	96.0 dB	8 W	96.0 dB	1.0 W	87.0 dB
4 W	93.0 dB				

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

<sup>2</sup> 1w1m 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

<sup>7</sup> Max useable SPL based on testing by NWAALabs

## Key Features

- High-power output (106.0 dB) for long throw and high SPL requirements.
- One 5.25 inch (133 mm) polypropylene woofer and one 1.0 inch (25 mm) horn-loaded convex aluminum tweeter with tractrix profile horn
- 87.0 dB average sensitivity offers high output capabilities and reduced amplification costs.
- All exposed components are plastic, aluminum or stainless steel for severe weather, outdoor applications.
- Easy-access, six-position selectable tap switch for 25-, 70.7- and 100-volt applications with transformer bypass position.
- Patented ZeroReflection™ enclosure technology for optimal sound reproduction and cabinet rigidity.
- Aluminum grille with powder-coat finish
- Includes the new SM590i-II-WX Stealth™ bracket mounting system.
- Vertical and horizontal pivoting allow the SM590i-II-WX to be aimed anywhere within the installation space.
- Low profile enclosure design keeps the speaker close to the wall.
- UL 1480 (UEAY) planned. IP44 approved.
- High quality black or white paint finish. Custom colors available.
- Included Accessories: Safety cable with speaker mounting bolt, Euroblock connector, wall mount bracket and terminal weather boot.

## Description

The SM590i-II-WX is a high-powered 5.25-inch, two-way, horn-loaded loudspeaker in a ported surface-mount enclosure that delivers effective low-end response (69 Hz @ -10 dB) and consistent dispersion pattern (2 to 10 kHz, independently verified). The SM590i-II-WX incorporates a low-profile grille, and six-position tap switch with transformer bypass. The SM590i-II-WX utilizes WX Weather Guard material, reducing water penetration through grille openings without compromising sound quality, and non-corrosive components for lasting audio performance in severe weather applications.

Mounting hardware is included and features the Stealth™ bracket mounting system. The SM590i-II-WX incorporates a security knob to reduce tampering after placement, unlim-

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ited directional aiming, and a low profile.

### Applications

Engineered for high SPL and effective low-end response in outdoor applications, the SM590i-II-WX delivers consistent high-performance music and paging for applications requiring longer throw or higher volume above the existing ambient noise level. Designed for severe weather, surface-mount applications, the SM590i-II-WX utilizes SoundTube's WeatherX Technology for lasting performance in the harshest conditions. System includes the new Stealth™ bracket mounting system, allowing for unlimited aiming angle. The system includes a detachable mounting plate designed for premounting in either wall or pole applications. The SM590i-II-WX is ideal for surface-mount, outdoor sound reinforcement/PA in applications with high ambient noise levels including casinos, warehouses, airports, transportation and shipping centers, schools, gyms, arenas and stadiums. For applications where additional bass is required, SoundTube's RS1001i-II-T and SM1001p subwoofers provide bass down to 41 Hz (-10 dB).

### WX Weather Guard Technology

SoundTube's WX Weather Guard technology utilizes a dual layer hydrophobic material inside the speaker grille to keep water from the drivers and internal electronics in even the most extreme weather conditions. An upgrade to the SM speaker products, the WX material greatly reduces water penetration through grille openings without compromising sound quality and performance. All speakers with WX technology are built using non-corrosive materials (stainless steel, or aluminum) for all exposed metal components, including grills, screws, and mounting systems. IP44 rating approved.

### Patented SoundTube Technologies

SoundTube Entertainment and the MSE Audio Group consistently develop 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. 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 are independently collected and verified by NWAALabs ([www.nwaalabs.com](http://www.nwaalabs.com)) using their proprietary MACH testing system. All data are collected and analyzed according to ASTM, ISO and AES standards using EASERA, TEF and MLSSA. Full balloon data including both phase and magnitude are compiled into a variety of formats including EASE 4.x, GLL and CLF.

#### 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. The low-frequency voice coil diameter shall be 25 mm (1 in).

Performance specifications of a typical production unit shall be as follows: Usable frequency response shall extend from 69 Hz – 22 kHz (-10 dB, half space, independently verified). Measured sensitivity (2.83-volt input, 1 meter) shall be at least 87 dB. The speaker shall have a nominal impedance of 8 ohms and shall be available for 25/70.7/100-volt modes with transformer bypass. 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 (RMS), and conforms to EIA-426-B testing. Maximum continuous output at 1 meter shall be 106 dB.

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

Installation for the speaker shall be by the new Stealth™ bracket mounting system. A tool-free system with locking mounting plate for either wall or pole mount applications shall be used. For safety redundancy, a secondary cable shall be included and attached to the speaker chassis via an included 1/4-20 UNC bolt. The external wiring input connector shall be a four-pin, 5.08 mm Euroblock for 8 ohm or distributed systems and shall accept from 10 – 22-gauge wire. The system shall be for indoor/outdoor applications and shall have a weather-resistant terminal boot covering all wire connectors. Unit is IP44 approved.

The enclosure shall be constructed of injection-molded, glass-reinforced ABS. The grille shall be constructed of iridite-plated, powder-coated aluminum for lasting performance. Overall cabinet dimensions shall be no more than 289.6 mm (11.40 in) in height by 212.3 mm (8.36 in) in width by 266.2 mm (10.48 in) in depth (including SM bracket). The unit shall include mounting hardware, safety cable, Euroblock connector and terminal weather boot.

The system shall be the SoundTube SM590i-II-WX with mounting hardware for both low- and high-impedance applications.

### SoundTube Entertainment

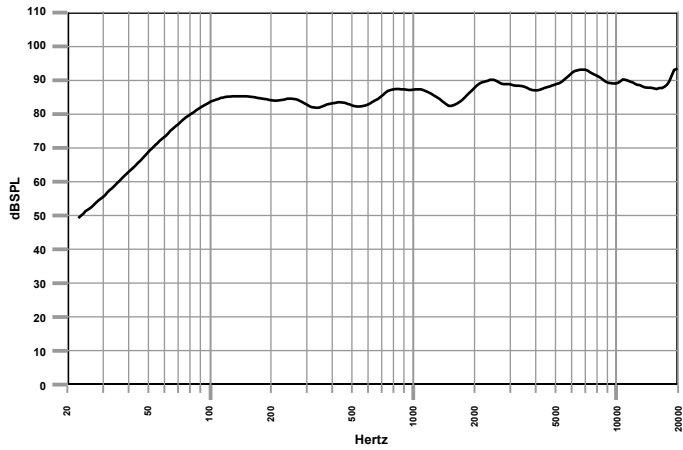
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**All SoundTube products come with a 5-year limited warranty.**

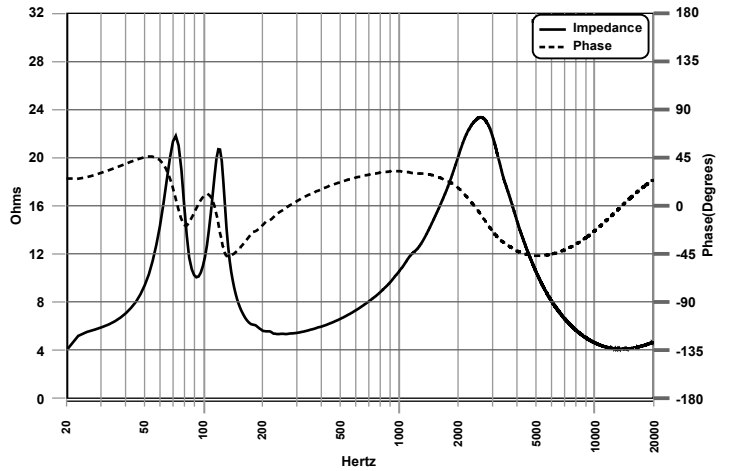


## Preliminary Graphs

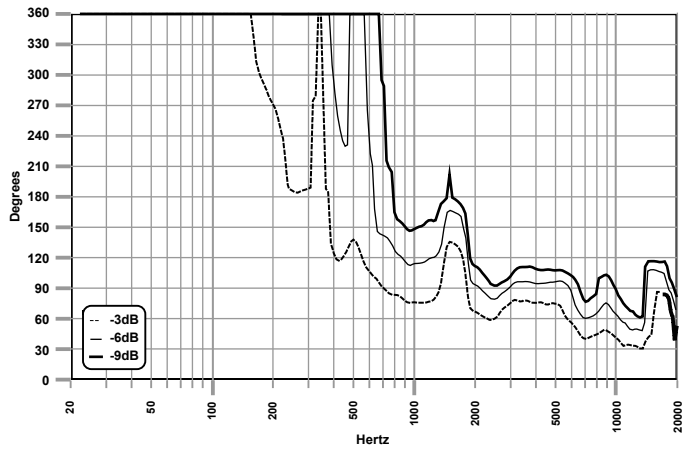
### Frequency Response



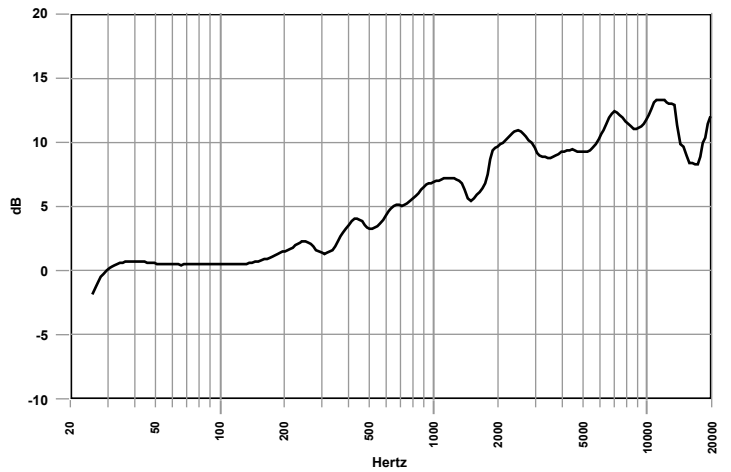
### Phase/Impedance Response



### Vertical Beamwidth (-6 dB)



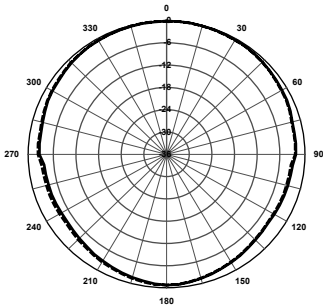
### Directivity Index (DI)



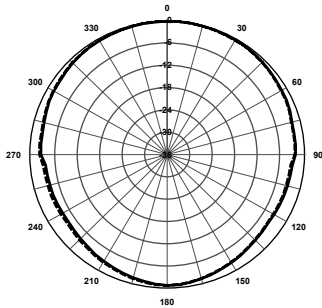


### Preliminary Polar Plots

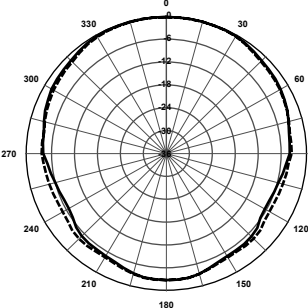
125 Hz



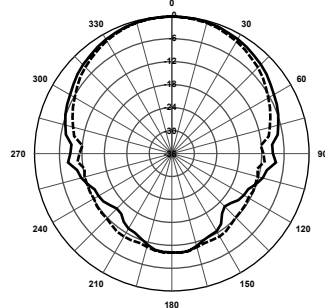
250 Hz



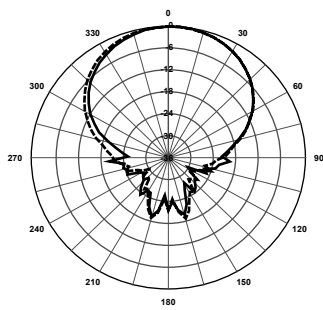
500 Hz



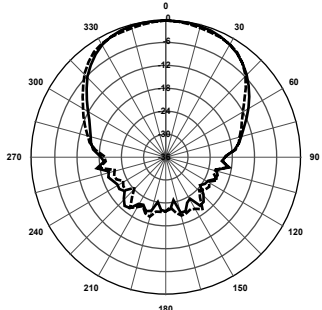
1,000 Hz



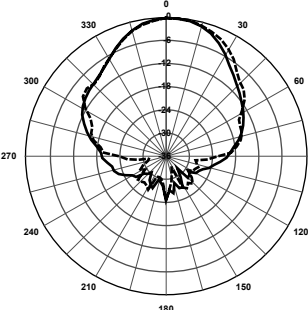
2,000 Hz



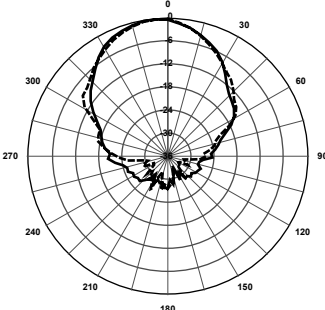
4,000 Hz



8,000 Hz



10,000 Hz



### Mechanical Drawings

