

## Digital Home Theater EF-Series Speaker Systems

# NS-777/NS-555/ NS-333/NS-C444

High performance speakers designed for home theater systems.

The EF (Elliptical Form) Series feature Waveguide horns, PMD (Polymer-injected Mica Diaphragm) woofers and highest quality internal Monster Cable wiring for total enjoyment of digital movie sound and music sources, plus elegant Yamaha traditional piano finish cabinets.



EF Speakers Add Elegance as well as Rich, High Clarity  
Sound to Any Home Theater System

# The Beautiful Form Encloses Superior Parts and Technology for Reproducing Pure Digital Sound.

- High sensitivity and wide dynamic range for contemporary digital sources
- Waveguide horn allows the sound field to be shaped and controlled for optimal spatial expression in home theater environments
- PMD (Polymer-injected Mica Diaphragm) cone woofer combines high-performance materials and design for extreme accuracy
- Highest quality internal Monster Cable wiring
- High frequency response dome tweeter delivers clear, natural highs
- Bi-wiring connectivity (NS-777/NS-555)
- Beautiful Yamaha piano finish with elegant elliptical form

## EF Series Has Been Upgraded for Higher Performance!

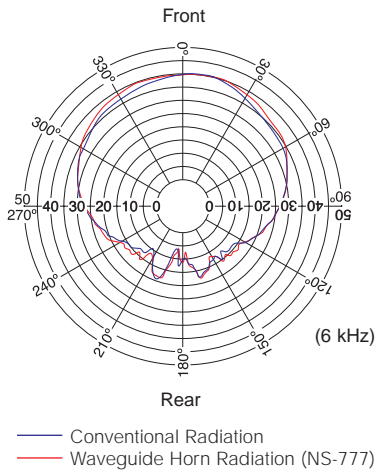
The PMC (Polymer-injected Mica Diaphragm) Series was a great success, proving popular with consumers and winning awards for excellence around the world. The new EF (Elliptical Form) Series is designed to build on that success, offering even higher performance combined with an elegant Yamaha traditional piano finish cabinet. The woofers, tweeters and cabinets have been refined and improved, and even the wiring has been upgraded, with Monster Cable being used to connect woofer and crossover network. The result is superb audio quality with music sources and the latest 6.1 and 5.1 channel movie soundtracks. It's the latest in home theater speaker design, from the leader in home theater: Yamaha.



### Behind EF Series Superiority: the Waveguide Horn

Conventional direct-radiating home speakers have broad directional characteristics that result in a relatively high proportion of reflected sound (you hear a lot of sound that has bounced off walls). Movie theaters, however, are designed to have a highly absorptive acoustic environment so multichannel soundtracks provide a rich sense of spatial expression. To achieve the same effect in the home, therefore, it is necessary to use speakers with a direct/reflected sound ratio quite different from ordinary audio speakers. This is especially true in multi-speaker home theaters, where there would otherwise be lots of reflections. Yamaha accomplished this with the development of the Waveguide Horn, creating the ideal home theater speaker.

**Flat High-Frequency Directional Characteristics of the Waveguide Horn**



High frequency directional characteristics of an installed Waveguide Horn speaker (red lines) and ordinary (blue lines). The Waveguide Horn speaker shows excellent balance in the front direction, with the surround effect to the sides and rear is not adversely affected by reflected sounds.

**Shaping and Controlling the Sound Field**

Waveguide Horns differ from conventional speaker horns in that their waveguide features a horizontal control angle of 135° and a vertical control angle of 120°. This allows the sound field to be shaped and controlled for optimal spatial expression in home theater environments. The Waveguide Horn also provides a much smoother frequency response than ordinary horns.

**PMD Cone Woofer Makes These Speakers Ideal for Home Theater Sound**

Home theater speakers must combine high power capabilities with excellent sensitivity and dynamic range, while being designed to prevent listening fatigue. The new EF Series speakers meet these

**Diaphragm Physical Characteristic**

|                                       | Density (g/cm <sup>3</sup> ) | Young's Ratio (x10 kg <sup>4</sup> /cm <sup>2</sup> ) | Absorbed Vibration Ratio (tan δ) | Acoustic Velocity (m/sec) |
|---------------------------------------|------------------------------|---|----------------------------------|---------------------------|
| PMD (Polymer-injected Mica Diaphragm) | 1.15                         | 8.0   | 0.05                             | 2,620                     |
| Polypropylene Sheet                   | 0.9                          | 1.5   | 0.06                             | 1,300                     |
| Pulp                                  | 0.46                         | 1.6   | 0.03                             | 1,870                     |

**PMD's superior characteristics help ensure outstanding sound quality.**

In order to effectively reproduce digital sound, speakers must have the following capabilities: wide dynamic range, high efficiency, sensitive response, and high linearity suspension. The PMD used in the EF Series Speakers plays an important role in providing these capabilities. Its strong points are listed in the chart. Density affects the speed of signal transmission and shows the speakers' excellent linearity. Young's Ratio represents strength, resulting in high efficiency and sensitive response. Absorbed Vibration Ratio is the value of internal loss: the lower this value, the lower the signal loss, so it also contributes to high efficiency and sensitive response. And finally, Acoustic Velocity represents the overall velocity of signal transmission, an important element in reproducing digital sound. With all these properties, PMD is a material perfectly suited to achieving the highest, most natural sound quality. The goal of digital sound composers is sound creation that permits the reproduction of realistic sound, including dialogue and sound effects, and PMD helps make this possible.

requirements by using a PMD (Polymer-injected Mica Diaphragm) cone woofer. This diaphragm is composed of 30% high quality white Indian Pearl Mica, chosen for the significant contribution it makes to sound quality. In order to maximize its distinctive qualities, absolutely no coloring is added to the material. We've also varied the cone thickness, making it thicker in the middle, which has been shown to improve performance. The cone is extremely light, yet also tough and durable, with excellent response speed.



Polymer-Injected Mica Microscope Photo

**High Quality Monster Cable**

Extremely high quality wiring, from the well-known Monster Cable Products, is used internally in each speaker to connect the woofer and crossover network.

**High Frequency Response Dome Tweeter**

The proven capabilities and durability of this dome tweeter made

it the ideal choice for these speakers. It can reproduce frequencies up to 35kHz and is powerful. The diffuser over the tweeter helps improve frequency response and directionality.

**Bi-Wiring Connection Capability (NS-777 and NS-555)**

Bi-wiring means that instead of connecting the speaker to the amplifier or receiver with two cables (plus and minus), you can use four cables: two for the woofer(s) and two for the tweeter. This decreases modulation distortion for purer sound quality.

**Beautiful Yamaha Piano Finish with Elegant Elliptical Form**

As one of the world's leading piano manufacturers, Yamaha has a long history of wood-working expertise. The EF Series speaker cabinets feature the same luxurious and environmentally friendly finish as our fine grand pianos.





| Main Specifications                           | NS-777   | NS-555   | NS-333  | NS-C444   |
|---|--|--|---|---|
| Type  | 3-way bass-reflex                                    | 3-way bass-reflex                                | 2-way bass-reflex                               | 2-way acoustic suspension                       |
| Woofers                                       | Dual 20cm (8") PMD cone                              | Dual 16cm (6-1/4") PMD cone                      | 13cm (5") PMD cone                              | Dual 13cm (5") PMD cone                         |
| Mid-Range Driver                              | 13cm (5") cone with Waveguide horn                   | 13cm (5") cone with Waveguide horn               |   |   |
| Tweeter                                       | 2.5cm (1") Aluminum dome with Waveguide horn         | 2.5cm (1") Aluminum dome with Waveguide horn     | 2.5cm (1") Aluminum dome with Waveguide horn    | 2.5cm (1") Aluminum dome with Waveguide horn    |
| Magnetic Shielding                            | Yes  | Yes  | Yes   | Yes   |
| Highest Quality Internal Monster Cable Wiring | Yes  | Yes  | Yes   | Yes   |
| Bi-Wiring Connectivity                        | Yes  | Yes  |   |   |
| Banana-Plug Compatible Terminals              | Yes  | Yes  | Yes   | Yes   |
| Frequency Response                            | 30–35,000 Hz   | 35–35,000 Hz                                     | 65–35,000 Hz                                    | 55–35,000 Hz                                    |
| Sensitivity                                   | 89 dB/0.283 V/1 m                                    | 88 dB/0.283 V/1 m                                | 87 dB/0.283 V/1 m                               | 89 dB/0.283 V/1 m                               |
| Input Power (Maximum/Nominal)                 | 250 W/100 W  | 250 W/100 W                                      | 150 W/60 W                                      | 250 W/100 W                                     |
| Impedance                                     | 6 ohms   | 6 ohms   | 6 ohms  | 6 ohms  |
| Dimensions (W x H x D)                        | 276 x 1,100 x 390 mm<br>10-7/8" x 43-5/16" x 15-3/8" | 222 x 980 x 345 mm<br>7-1/16" x 13-1/8" x 7-1/4" | 200 x 320 x 213 mm<br>7-7/8" x 12-5/8" x 8-3/8" | 514 x 190 x 213 mm<br>20-1/4" x 7-1/2" x 8-3/8" |
| Weight  | 24.4 kg; 53.8 lbs.                                   | 20 kg; 44.1 lbs.                                 | 5.5 kg; 12.1 lbs.                               | 7.3 kg; 16.1 lbs.                               |

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