



**T**he success of Paradigm® Reference since its introduction in 1996 has been nothing short of astonishing! From the beginning, we have taken a cost-no-object approach to speaker design, using only the most sophisticated technologies. Our success can be heard in every sound, every glorious Paradigm® Reference note.

In true audiophile fashion however, our engineers persist, seeing room for improvement and opportunity for refinement in the planning and design of each new generation of award-winning Paradigm® Reference speakers. We are very pleased and proud to present Studio Series v.5 ...

- **NEW!** Beautifully Sculpted Real Wood Veneer Cabinets;
- **NEW!** Studio 10 ... an all-new compact bookshelf/stand model for bass performance that rivals larger models;
- **NEW!** Studio 60 ... redesigned with a smaller footprint to fit seamlessly into today's popular home décor;
- **NEW!** Studio CC-490 ... teamed with the Studio 10, this compact center channel will knock the socks off those looking for a more compact size Studio system;
- **NEW!** Cutting-Edge Technology Updates on all bass/midrange and bass drivers. The updates promote higher output and deeper bass extension, with lower distortion and more linearity than ever achieved in Studio;
- **NEW!** Redesigned Removable Grilles and Kickplates to complement cabinetry;
- **NEW!** SUB 12 and SUB 15 ... two all-new, ultra-powerful state-of-the-art Paradigm® Reference subwoofers with Ultra-Class-D™ amplifiers, Paradigm's own digital signal optimization and control, and so much more.

## Highlights of the NEW Studio Series v.5



**NEW!** Beautifully sculpted cabinets add a whole new dimension to the classic appeal of this series ... reminiscent of our ultra-high-end Signature Series speakers. Seven coats of the highest-quality lacquer, hand-sanded between coats.

Available in three truly luxurious real wood veneer finishes. The rich, deep wood grains are evident on all models: Cherry, Rosewood and Black. (Excludes ADP's).



**NEW!** Redesigned speaker grilles complement the new cabinetry. The more open and transparent grille design ensures the speakers sound marvellous with the grilles on or off.



**NEW!** Beautifully redesigned kickplate and outrigger feet have been sculpted to fit flush with the new cabinetry. The bronze color complements the finishes for the perfect final touch. From every angle, these speakers exude high-end elegance.



**NEW!** The redesigned cabinet top, bottom, sides and baffle are MDF (Medium Density Fiberboard) construction with critically placed internal bracing. A very high-tech damping material helps subdue leftover internal cabinet resonances and vibrations.



**NEW!** Advanced Santoprene® rubber suspensions (Bass/Midrange and Bass drivers). The new FEA-optimized, elliptical shaped suspension allowed us to achieve even lower levels of distortion, with deeper and louder bass performance. Linearity is the finest yet achieved in the Studio Series. High-hysteresis and progressive damping isolate and eliminate "edge-hole" distortion.



**NEW!** Ultra-compact Studio 10 features an elliptical low-noise, low-turbulence port for unusually deep and articulate bass performance, particularly in such a compact bookshelf model.

## SUB 12 AND SUB 15 SUBWOOFERS

**H**igh-end gear has a reputation for being outrageously priced, but don't be fooled. Sometimes, even the priciest gear delivers performance that is nothing to write home about. Today, more than ever, the price-to-performance ratio of a product must remain top of mind—and it's where Paradigm shines. It's why we have been voted #1 for 19 years\*. SUB 12 and SUB 15 are perfect examples.

A natural evolution in our lineup of award-winning subwoofers, they benefit from our years of research into the mechanics of producing louder, lower-frequency, lower-distortion bass. In fact, the three "L's" are the driving force behind our ongoing commitment to refining and improving the performance of our subwoofers.

The unique amplifier/driver configuration in SUB 12 and SUB 15 allows them to play louder and lower than any other subwoofers in this price range, and still cost less! And unlike many designs on the market, not a hint of low-frequency extension or output was sacrificed to keep their size compatible with today's living spaces. What's more, a comprehensive range of input and control facilities make setting up the subwoofers a snap.

Finally, since the room itself (dimensions, dead spots, archways, even furniture) can have a dramatic impact when even the finest subwoofers are perfectly positioned, Paradigm also offers a solution for the problems of the room! SUB 12 and SUB 15 are designed to be used with the critically acclaimed Paradigm® Perfect Bass Kit\* (PBK-1") which adjusts for the room's negative effects on a subwoofer.



*The three "L's" are the driving force behind Paradigm's subwoofer research . . . Louder, Lower-Frequency, Lower-Distortion bass.*

—Paradigm® Design Team

\*Rated #1 Price/Performance by the distinguished publication *Inside Track*.

\*\*Paradigm® Perfect Bass Kit sold separately. Details on page 6.



### High-Excursion Bass Drivers

These proprietary bass drivers, a version of which was first seen in our incredible Signature SUB 25, were designed, engineered and manufactured by Paradigm in North America: 12" (308 mm) in the SUB 12 and 15" (380 mm) in the SUB 15. With unwanted resonances, standing waves and micro-distortions non-existent, these subwoofers display incredible definition, awe-inspiring dynamics, lightning-fast speed and gut-wrenching power.

- **Mineral-Filled Co-Polymer Polypropylene Cones with RCR™ Resonance Control Ribs:** Engineered for very high power, the high-stiffness design is intrinsically low in distortion, allowing the bass cone to respond instantly to the starts and stops of even the leading edge of changing bass notes.
- **A Powerful Dual-Voice-Coil Design! 3-Inch (76 mm) High-Temperature Aluminum Voice Coils:** Wound on high-temperature Kapton® formers in an oversize configuration, the 2 + 2-layer dual voice coils provide exceptional linearity and motor strength during the very long cone excursion.
- **Advanced Multi-Layer Polyurethane-Composite Elliptical Surrounds and Dual Oversize Spiders:** Optimized using Finite Element Analysis (FEA), a highly advanced tool for component design, the surrounds' multi-layer composite matrix, with its high-tech surface treatment, encourages extended cone excursion. Staggering peak-to-peak excursion—with exceptional linearity and cone control.

- **Large Aluminum Shorting Rings:** Situated around the voice coil, the rings not only improve linearity and heat dissipation, they help reduce voice coil inductance and distortion. Results are apparent in vanishingly low levels of distortion.
- **Large High-Pressure Die-Cast Aluminum Chassis:** Control flexing and ringing.
- **Proprietary AVS™ Airflow Ventilation System Cooling:** Large built-in ribs increase the heat dissipation surface, providing forced-air cooling during large musical transients and chassis convection cooling at all other times.
- **Extruded-Aluminum Center Heatsinks:** Provide internal forced-air cooling to drive heat away from the high-velocity low-turbulence pole piece, increasing power handling while reducing distortion.
- **Large 35-lb (15.8 kg) Computer-Optimized Magnet Assemblies Boast Balanced Field Geometry:** Using Finite Element Analysis, the subwoofers' oversize magnet structure has been optimized to produce a powerful high-density symmetrical magnetic forcefield while minimizing inductive distortion. Transient and phase response, power handling and output linearity are all exceptional.

### Input and Control Facilities

#### Input Facilities:

##### Low-Level Input – RCA:

Allows connection from the RCA (S/E) Left and Right or Sub/LFE Outputs of your Preamplifier/Processor or other suitable low-level source.

##### Low-Level Input – Balanced XLR:

Allows connection from the Balanced XLR Sub/LFE Output of your Preamplifier/Processor or other suitable low-level source. This input provides the lowest noise and distortion. It is particularly important for long cable runs where noise and distortion could degrade performance.

#### Control Facilities:

##### Auto On/Off:

Eliminates the need for a manually operated power switch. Turns the subwoofer on when there is an input signal. If no signal is present, after a period of time it turns off.

##### Trigger On/Off:

Allows the subwoofer's power on/off to be controlled by components that have a trigger output (preamp/processor, etc.).

#### Subwoofer Cut-Off with Bypass Option:

(Continuously variable 35 Hz – 150 Hz) Controls the sub's upper frequency cut-off and can be set to match the low-frequency roll-off characteristics of your system's speakers.

Bypass Option allows you to bypass the subwoofer's built-in cut-off control to let your preamp/processor's or receiver's internal bass management system provide the crossover function.

#### Subwoofer Level Control:

Balances the subwoofer level with that of the other speakers in your system.

#### Phase Alignment:

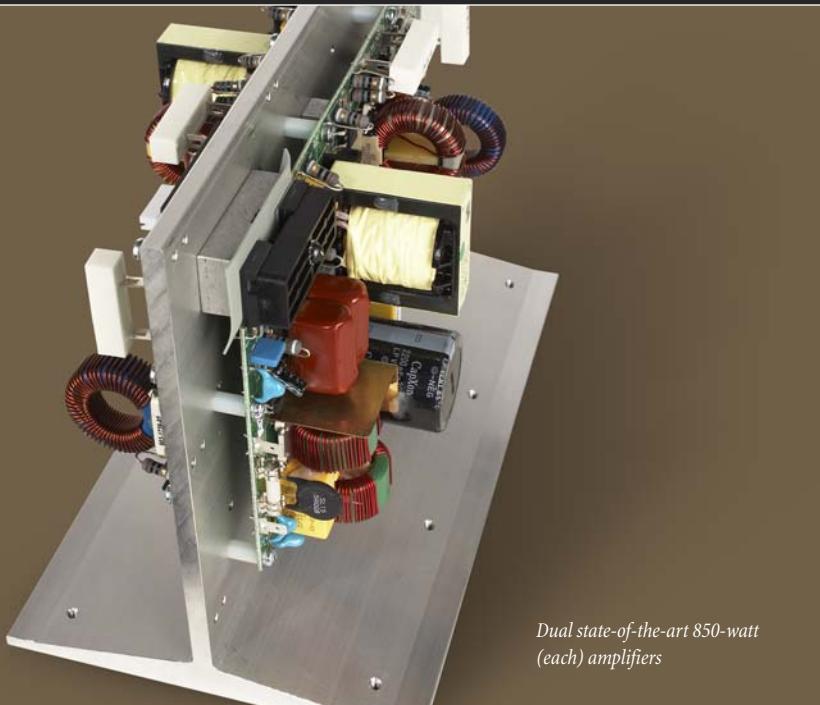
(Continuously variable 0° – 180°) Accurately synchronizes your subwoofer and front speakers through their bass frequency overlap region.

#### USB Port:

Allows for:

- Connection of the optional Paradigm® Perfect Bass Kit (PBK-1™), sold separately;
- Future upgrades to software installed on your subwoofer.

## SUB 12 AND SUB 15 DUAL ULTRA-CLASS-D™ AMPLIFIERS



### Small Form Factor. BIG POWER!

Designed, engineered and manufactured by Paradigm in North America, this unique design features dual state-of-the-art Ultra-Class-D™ amplifiers housed inside one cabinet. State-of-the-art component parts:

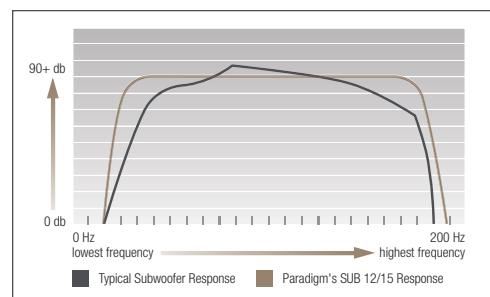
- **Dual Efficient Ultra-Class-D™ Amplifiers with Switching Power Supplies:** boast more than 90% efficiency! Optimized to completely control the operation of the bass driver. Prodigious total output: 3,400 watts of Dynamic Peak Power; 1,700 watts (850 watts each amplifier) of RMS Sustained Power.
- **More Power from a Smaller Package. How to achieve this?** One of the things to consider is the choice of transformer. Our low-noise, ultra-high-power, yet compact transformer (0.4 lb / 0.18 kg) is ideal. Unlike the large and heavy transformers in a linear power supply, it boasts an ETD-core developed particularly for applications that require high power in a small format. Yet the transformer is only part of the advanced system on each of these amplifiers. The switched-mode power supply benefits from: highest quality MOSFET transistors, noise-suppression networks and an advanced control circuit. The result is tremendous current with ultra-quiet operation.
- **The Full-Bridge Ultra-Class-D™ Design Output Stage:** Operates from split power supply rails ensuring exceptionally low distortion. The high-quality output filter inductors with super-efficient toroidal cores, four high-quality MOSFET transistors on each amplifier (each capable of carrying 65 amps of continuous current), and a noise-suppression network play a significant role. Not only does this design increase the speed of the switching, it also dramatically increases switching efficiency.
- **Precision Components and Dual-Sided Military Spec (FR-4 rated) Glass/Epoxy Circuit Boards:** Superior 'Reference' quality performance with an enviable degree of reliability over the long term.

• **Proprietary Amplifier Temperature Sensors:** Maintain the safe operating temperature of the dual amplifiers, even under extreme operating conditions.

• **Advanced Short-Circuit Protection:** Should current through the MOSFETs exceed an internally preset limit, a Silicon Controlled Rectifier (SCR) disables the output stage. Essentially a 'latching' device, the SCR will not allow the output stage to be re-enabled until power is reset. Reaction time is typically within 10 µs.

• **Novel Adaptive PWM (Pulse Width Modulation) Power Processor:** Minimizes distortion and optimizes efficiency. Conventional Class-D designs have very low power supply rejection. Paradigm's Ultra-Class-D™ design inherently rejects variations in the power supply.

**Paradigm's Own Digital Signal Processing (DSP) Design:** Sophisticated mathematical algorithms "shape" the frequency response, ensuring accurate, consistent and musical bass without audible distortion, even when the subwoofers are playing at the loudest levels:



*Paradigm's own Digital Signal Processing Design*



Fully sealed preamplifier section

## Less Heat, More Power, No Noise!

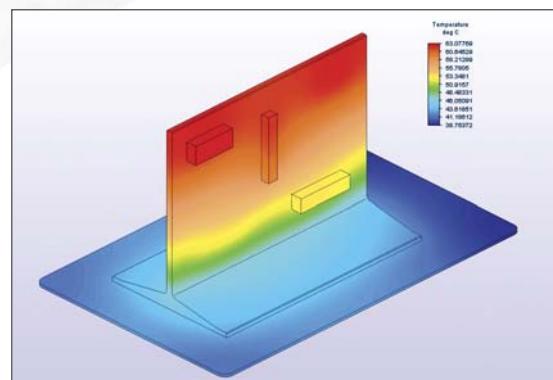
It's one thing to house two 850-watt Ultra-Class-D™ amplifiers in a single cabinet, it's quite another to ensure that all of that power is harnessed for effective and efficient delivery, without a maelstrom of unwanted sonic side effects.

Our sophisticated R&D facilities held the answer. We enjoy a number of highly advanced tools for component design. One of them is Finite Element Analysis (FEA), an invaluable process when monitoring a design for efficient heat dissipation or performing stress analyses.

Using FEA, the 'T-shape' center aluminum extrusion to which each amplifier is attached was optimized to obtain exceptional heat dissipation away from the amplifiers (see diagram below). An FEA modal frequency analysis was also done to ensure the entire assembly is free of unwanted resonances and vibrations. Even the correct size and thickness (3.2 mm) of the amplifier panel was calculated to obtain optimal heat dissipation-to-size ratio. Finally, a fully sealed preamplifier board cover (inset bottom left) eliminates the possibility of air leaks.

*Close-up of unique 7-mm thick FEA-optimized high-grade aluminum 'T-extrusion' (see left).*

'T-extrusion' shown below without amplifiers to illustrate design effectiveness ...



*Exceptional heat dissipation away from the amplifiers: design ensures maximum efficiency and the amplifier runs cooler*



## Cross-Cut Tunnel Bracing™

Conventional enclosures store energy. At various frequencies, the enclosure vibrates (like a tuning fork) at audible levels for a short period of time. These uncontrolled vibrations smear the sound, resulting in a loss of accuracy and clarity. Superior high-end bass performance, the caliber for which Paradigm® Reference subwoofers are known, requires a supremely rigid and sonically inert cabinet. But how to achieve this in a cabinet slated to hold not one, but two ultra-powerful amplifiers, as well as a large state-of-the-art driver? The solution ...

- Medium Density Fiberboard (MDF) composition throughout;
- Critically placed internal damping fiber provides excellent absorption of any stray rear wave or internal standing wave energy;
- A thick 1" MDF front baffle provides additional rigidity;
- The fully veneered cabinet also adds rigidity.

Finite Element Analysis (FEA) played a major role, yet again:

- Size, thickness and location of the tunnel bracing in relation to overall size and weight of the cabinet were optimized using FEA;
- Size and position of the cross-cuts along each brace were also FEA-optimized to obtain the most effective 'strength-to-air' surface area.

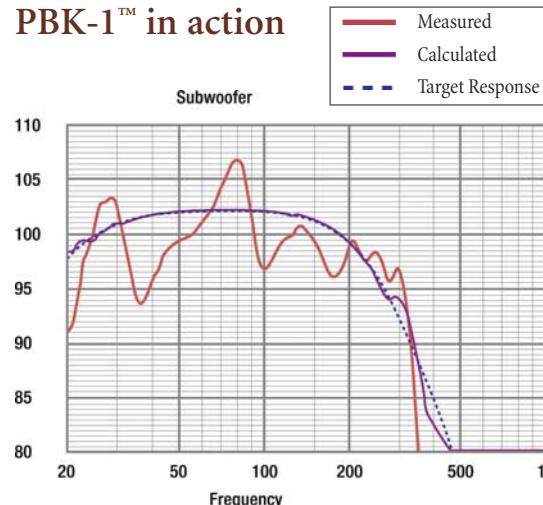
Driver chassis and amplifier panel were physically recessed into the cabinet to maintain the cabinet's clean lines.

# PERFECT BASS PERFORMANCE IN ANY ROOM. NOT ONLY IS IT POSSIBLE, WE'VE MADE IT EASY!

Paradigm's Perfect Bass Kit (PBK-1™) is a derivative of the critically acclaimed Anthem® Room Correction (ARC™) system, based on research conducted by the National Research Council (NRC). The NRC's goal was to identify the correct 'in-room' target response for a loudspeaker (in this case, the subwoofer) and then develop a way to achieve that same response in any listening room. Using proprietary processing, PBK-1™ measures your subwoofer's frequency response and then computes the target response to yield optimal bass performance in your room. Each PBK-1™ can be used with up to four Paradigm® Reference subs.



## PBK-1™ in action



## Paradigm® Perfect Bass Kit

Even when the world's finest subwoofers are perfectly placed, the room can still have a dramatic impact on performance. Room dimensions, dead spots, archways, and even furniture placement can turn a room into an additional instrument, playing alongside musicians or movie scores with unwanted contributions of coloration and resonance. Bass in particular can sound bloated or boomy, with poor definition.

### What makes Paradigm's Perfect Bass Kit better ...

- **PBK-1™ is unlike anything previously available:** With the introduction of the Paradigm® Perfect Bass Kit the negative effects of room boundaries on sound quality are a thing of the past. This state-of-the-art 'bass perfecting' system analyzes the subwoofer's response in your room, then sets the correct equalization parameters to attain optimal sound.

The frequency response of each PBK-1™ microphone is measured precisely and the data is used to create the microphone's calibration file included on the PBK-1™ software disk. The microphone can only be used with the matching individual calibration file.

- **PBK-1™ applies Super-Efficient Infinite Impulse Response (IIR) Filters** in addition to **Paradigm's Custom Filter Topology** to minimize delay and reduce processing gain noise. The combined approach of limited-width IIR filters and custom-applied topology means that any artifacts that might have resulted from the filtering process are so small as to be completely inaudible.

- **PBK-1™ allows for Multiple Microphone Measurements:** Most room equalization methods work from a single point source, taking one measurement at the primary listening position. PBK-1™ however, provides for multiple user-selected measurement points (we suggest a minimum of five, but up to ten positions can be measured), beginning with a measurement at the primary listening position and then moving across the listening area. This process is critical to properly dealing with standing waves and ensuring optimal bass performance throughout the listening area.

- **Unlike many "Room EQ" systems, PBK-1™ applies Correction to Peaks (modes) and Dips (anti-modes):** Tackling both allows us to achieve a far more accurate and natural room response. And to limit the demands on the amplifier as well as maximize signal-to-noise ratio, PBK-1™ applies appropriate limits to this correction.

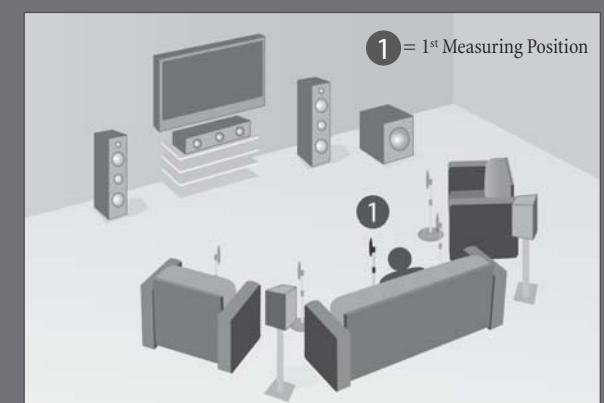
- **PBK-1™ is Ultra-Accurate:** The connected PC's 64-bit floating-point processor does the hard work of calculating the correction curves, which greatly minimizes rounding errors due to a less sophisticated "calculator".

- **It's Easy-to-Use (at least your part is!):** Three years of intensive research and development on our part have made it a snap to attain 'Perfect Bass' performance in any room! All that's required is a PC running Windows XP or Vista, two USB ports and the Paradigm® Perfect Bass Kit. Paradigm even includes the two USB cables you'll need: one for the PBK-1™ microphone and one for the subwoofer.

## How does the Paradigm® Perfect Bass Kit do what it does?

The process begins when your computer signals the subwoofer to play the test signal, which is then picked up by the individually calibrated microphone. The system puts the subwoofer through a frequency sweep to highlight problem areas and determine necessary adjustments. It asks you to position the microphone in at least five different locations. Configurations are then saved on the connected PC. The optimized solutions are calculated, then uploaded to the subwoofer and the calculated room corrections are put in place. An audiophile solution to the problem of 'the room'!

*The PBK-1™ microphone is positioned at seated ear level, pointed at the ceiling*



## S P E C I F I C A T I O N S

\*DIN 45 500. Indicates -3 dB in a typical listening room. †With typical program source, provided the amplifier clips no more than 10% of the time.

Paradigm® stands sold separately, see your Dealer.



	Studio 10	Studio 20	Studio 60	Studio 100
<b>Design</b>	2-driver, 2-way, bookshelf / stand-mounted	2-driver, 2-way, bookshelf / stand-mounted	4-driver, 2-1/2-way, floorstanding	5-driver, 3-way, floorstanding
<b>Crossover(s)</b>	2nd-order electro-acoustic at 2.0 kHz	2nd-order electro-acoustic at 2.0 kHz	2nd-order electro-acoustic at 2.0 kHz, 2nd-order electro-acoustic at 500 Hz (lower bass drivers)	3rd-order electro-acoustic at 2.0 kHz, 3rd-order electro-acoustic at 300 Hz (bass drivers)
<b>High-Frequency Driver</b>	25-mm (1 in) G-PAL™ dome, ferro-fluid damped / cooled, die-cast heatsink chassis, IMS/SHOCK-MOUNT™	25-mm (1 in) G-PAL™ dome, ferro-fluid damped / cooled, die-cast heatsink chassis, IMS/SHOCK-MOUNT™	25-mm (1 in) G-PAL™ dome, ferro-fluid damped / cooled, die-cast heatsink chassis, IMS/SHOCK-MOUNT™	25-mm (1 in) G-PAL™ dome, ferro-fluid damped / cooled, die-cast heatsink chassis, IMS/SHOCK-MOUNT™
<b>Midrange Driver</b>	n/a	n/a	n/a	178-mm (7 in) S-PAL™ cone, 38-mm (1-1/2 in) voice coil, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™
<b>Bass / Midrange Driver</b>	140-mm (5-1/2 in) S-PAL™ cone, 38-mm (1-1/2 in) voice coil, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™	178-mm (7 in) S-PAL™ cone, 38-mm (1-1/2 in) voice coil, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™	140-mm (5-1/2 in) S-PAL™ cone, 38-mm (1-1/2 in) voice coil, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™	n/a
<b>Bass Drivers</b>	n/a	n/a	Two 140-mm (5-1/2 in) mineral-filled polypropylene cones, 38-mm (1-1/2 in) voice coils, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™	Three 178-mm (7 in) mineral-filled polypropylene cones, 38-mm (1-1/2 in) voice coils, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™
<b>Low-Frequency Extension*</b>	37 Hz (DIN)*	36 Hz (DIN)*	29 Hz (DIN)*	25 Hz (DIN)*
<b>Frequency Response: On-Axis 30° Off-Axis</b>	±2 dB from 62 Hz – 22 kHz ±2 dB from 62 Hz – 20 kHz	±2 dB from 54 Hz – 22 kHz ±2 dB from 54 Hz – 20 kHz	±2 dB from 45 Hz – 22 kHz ±2 dB from 45 Hz – 20 kHz	±2 dB from 44 Hz – 22 kHz ±2 dB from 44 Hz – 20 kHz
<b>Sensitivity – Room / Anechoic</b>	89 dB / 86 dB	90 dB / 87 dB	92 dB / 89 dB	93 dB / 90 dB
<b>Suitable Amplifier Power Range</b>	15 – 150 watts	15 – 180 watts	15 – 220 watts	15 – 350 watts
<b>Maximum Input Power†</b>	90 watts	110 watts	170 watts	230 watts
<b>Impedance</b>	Compatible with 8 ohms	Compatible with 8 ohms	Compatible with 8 ohms	Compatible with 8 ohms
<b>Height, Width, Depth</b> (Heights include spikes or outrigger feet; widths exclude feet)	30.3 cm x 20.0 cm x 30.1 cm 12 in x 7-7/8 in x 11-7/8 in	37.2 cm x 22.5 cm x 33.5 cm 14-5/8 in x 8-7/8 in x 13-1/8 in	101.8 cm x 20.0 cm x 30.1 cm 40-1/8 in x 7-7/8 in x 11-7/8 in	112.0 cm x 24.1 cm x 43.1 cm 44-1/8 in x 9-1/2 in x 17 in
<b>Weight (Unpacked)</b>	8.2 kg / 18 lb each	10.7 kg / 24 lb each	22.7 kg / 50 lb each	35.4 kg / 78 lb each
<b>Finishes</b>	Cherry, Rosenut, Black	Cherry, Rosenut, Black	Cherry, Rosenut, Black	Cherry, Rosenut, Black
<b>Speaker Stand</b>	J-29	J-29	n/a	n/a

\*DIN 45 500. Indicates -3 dB in a typical listening room. †With typical program source, provided the amplifier clips no more than 10% of the time.  
††ABEC™ Automatic Boundary Effects Compensation feature.

Paradigm® stands sold separately, see your Dealer.



### Studio CC-490

### Studio Esprit / Studio Esprit C

### Studio CC-590

### Studio CC-690

#### Design

4-driver, 3-way, center channel

4-driver, 3-way, on-wall / stand-mounted (L/R) / shelf-mounted (C), ABEC™†† boundary compensation

4-driver, 3-way, center channel

6-driver, 3-way, center channel

#### Crossovers

2nd-order electro-acoustic at 2.1 kHz,  
2nd-order electro-acoustic at 500 Hz  
(bass drivers)

3rd-order electro-acoustic at 2.4 kHz,  
3rd-order electro-acoustic at 350 Hz  
(bass drivers)

2nd-order electro-acoustic at 2.5 kHz,  
2nd-order electro-acoustic at 400 Hz  
(bass drivers)

2nd-order electro-acoustic at 3.0 kHz,  
2nd-order electro-acoustic at 500 Hz  
(bass drivers)

#### High-Frequency Driver

25-mm (1 in) G-PAL™ dome, ferro-fluid damped / cooled, die-cast heatsink chassis, IMS/SHOCK-MOUNT™

25-mm (1 in) G-PAL™ dome, ferro-fluid damped / cooled, die-cast heatsink chassis, IMS/SHOCK-MOUNT™

25-mm (1 in) G-PAL™ dome, ferro-fluid damped / cooled, die-cast heatsink chassis, IMS/SHOCK-MOUNT™

25-mm (1 in) G-PAL™ dome, ferro-fluid damped / cooled, die-cast heatsink chassis, IMS/SHOCK-MOUNT™

#### Midrange Driver

89-mm (3-1/2 in) S-PAL™ cone, ferro-fluid damped / cooled, 25-mm (1 in) voice coil, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™

115-mm (4-1/2 in) S-PAL™ cone, ferro-fluid damped / cooled, 25-mm (1 in) voice coil, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™

115-mm (4-1/2 in) S-PAL™ cone, ferro-fluid damped / cooled, 25-mm (1 in) voice coil, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™

115-mm (4-1/2 in) S-PAL™ cone, ferro-fluid damped / cooled, 25-mm (1 in) voice coil, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™

#### Bass / Midrange Drivers

n/a

n/a

n/a

Two 178-mm (7 in) S-PAL™ cones, 38-mm (1-1/2 in) voice coils, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™

#### Bass Drivers

Two 140-mm (5-1/2 in) mineral-filled polypropylene cones, 38-mm (1-1/2 in) voice coils, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™

Two 178-mm (7 in) mineral-filled polypropylene cones, 38-mm (1-1/2 in) voice coils, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™

Two 178-mm (7 in) mineral-filled polypropylene cones, 38-mm (1-1/2 in) voice coils, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™

Two 178-mm (7 in) mineral-filled polypropylene cones, 38-mm (1-1/2 in) voice coils, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™

#### Low-Frequency Extension\*

43 Hz (DIN)\*

46 Hz (DIN)\*

36 Hz (DIN)\*

32 Hz (DIN)\*

#### Frequency Response: On-Axis 30° Off-Axis

±2 dB from 65 Hz – 20 kHz  
±2 dB from 65 Hz – 18 kHz

±2 dB from 75 Hz – 20 kHz  
±2 dB from 75 Hz – 18 kHz

±2 dB from 55 Hz – 20 kHz  
±2 dB from 55 Hz – 18 kHz

±2 dB from 47 Hz – 20 kHz  
±2 dB from 47 Hz – 18 kHz

#### Sensitivity – Room / Anechoic

90 dB / 87 dB

92 dB / 88 dB

91 dB / 88 dB

93 dB / 90 dB

#### Suitable Amplifier Power Range

15 – 200 watts

15 – 200 watts

15 – 220 watts

15 – 300 watts

#### Maximum Input Power†

150 watts

150 watts

170 watts

210 watts

#### Impedance

Compatible with 8 ohms

Compatible with 8 ohms

Compatible with 8 ohms

Compatible with 8 ohms

#### Height, Width, Depth

(Heights include cradles on traditional center channels only)

21.1 cm x 48.8 cm x 28.9 cm  
8-3/8 in x 19-1/4 in x 11-3/8 in

67.0 cm x 22.7 cm x 14.9 cm  
26-7/16 in x 8-1/8 in x 5-7/8 in

23.7 cm x 66.6 cm x 32.0 cm  
9-3/8 in x 26-1/4 in x 12-5/8 in

25.3 cm x 94.5 cm x 41.9 cm  
10 in x 37-1/4 in x 16-1/2 in

#### Weight (Unpacked)

12.2 kg / 27 lb each

10.9 kg / 24 lb each

17.7 kg / 39 lb each

31.8 kg / 70 lb each

#### Finishes

Cherry, Rosenut, Black

Side Panels: Cherry, Rosenut, Piano Black

Cherry, Rosenut, Black

Cherry, Rosenut, Black

#### Speaker Stand

J-18C

GS-40

J-18C

J-18C

## S P E C I F I C A T I O N S

\*DIN 45 500. Indicates -3 dB in a typical listening room. †With typical program source, provided the amplifier clips no more than 10% of the time.

Paradigm® stands sold separately, see your Dealer.

## S U B W O O F E R S



**Studio ADP-590**



**SUB 12**



**SUB 15**

<b>Design</b>	5-driver, 3-way, surround / rear, reverberant soundfield, wall-mount bracket included	<b>Design</b>	Single high-excursion driver, sealed enclosure, patented built-in Ultra-Class-D™ power amplifier, USB port
<b>Crossovers</b>	1st-order electro-acoustic at 2.1 kHz, 2nd-order electro-acoustic at 300 Hz (bass driver)	<b>Amplifier</b>	High-Current Discrete-Output: 3,400 watts Dynamic Peak / 1,700 watts RMS Sustained
<b>High-Frequency Drivers</b>	Two 25-mm (1 in) G-PAL™ domes, ferro-fluid damped / cooled, die-cast heatsink chassis, IMS/SHOCK-MOUNT™	<b>Amplifier Features</b>	Auto-On / Off, Trigger-On / Off, soft clipping, electrical shorting protection, thermal protection
<b>Midrange Drivers</b>	Two 89-mm (3-1/2 in) S-PAL™ cones, ferro-fluid damped / cooled, 25-mm (1 in) voice coils, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™	<b>Bass Driver</b>	305-mm (12 in) RCR™ mineral-filled co-polymer polypropylene cone, oversize FEA-optimized polyurethane-composite elliptical surround, dual spiders, massive aluminum shorting ring, 76-mm (3 in) 2-layer + 2-layer dual voice coil, high-temperature Kapton® former, 35-lb (15.8 kg) ceramic / ferrite magnet structure, AVS™ die-cast heatsink chassis
<b>Bass / Midrange Driver</b>	n/a	<b>Low-Frequency Extension*</b>	16 Hz (DIN)*
<b>Bass Driver</b>	178-mm (7 in) mineral-filled polypropylene cone, 38-mm (1-1/2 in) voice coil, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™	<b>Subwoofer Cut-Off Frequency</b>	Variable 35 Hz – 150 Hz; Bypass Option
<b>Low-Frequency Extension*</b>	60 Hz (DIN)*	<b>Sub / Sat Phase Alignment</b>	Variable 0° – 180°
<b>Frequency Response: On-Axis 30° Off-Axis</b>	±2 dB from 85 Hz – 20 kHz (reverberant soundfield)	<b>Line-Level Input</b>	RCA (S/E) Left and Right or Sub-Out / LFE or Balanced XLR. From Sub-Out / LFE-Out of preamp/processor or other line-level source
<b>Sensitivity – Room / Anechoic</b>	88 dB / 85 dB	<b>Line-Level Input Sensitivity</b>	100 mV mono
<b>Suitable Amplifier Power Range</b>	15 – 180 watts	<b>Line-Level Input Impedance</b>	RCA: 10k ohms; XLR: 20k ohms
<b>Maximum Input Power†</b>	130 watts	<b>Height, Width, Depth</b>	44.3 cm x 40.7 cm x 54.6 cm 17-7/16 in x 16 in x 21-1/2 in
<b>Impedance</b>	Compatible with 8 ohms	<b>Internal Volume</b>	42 L / 1.4 cu ft
<b>Height, Width, Depth</b>	22.0 cm x 37.5 cm x 17.0 cm 8-3/4 in x 14-3/4 in x 6-5/8 in	<b>Weight (Unpacked)</b>	39.9 kg / 88 lb each
<b>Weight (Unpacked)</b>	7.9 kg / 18 lb each	<b>Finishes</b>	Cherry, Rosenut, Black
<b>Finishes</b>	Black, White		Cherry, Rosenut, Black
<b>Speaker Stands</b>	J-29, S-26		

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