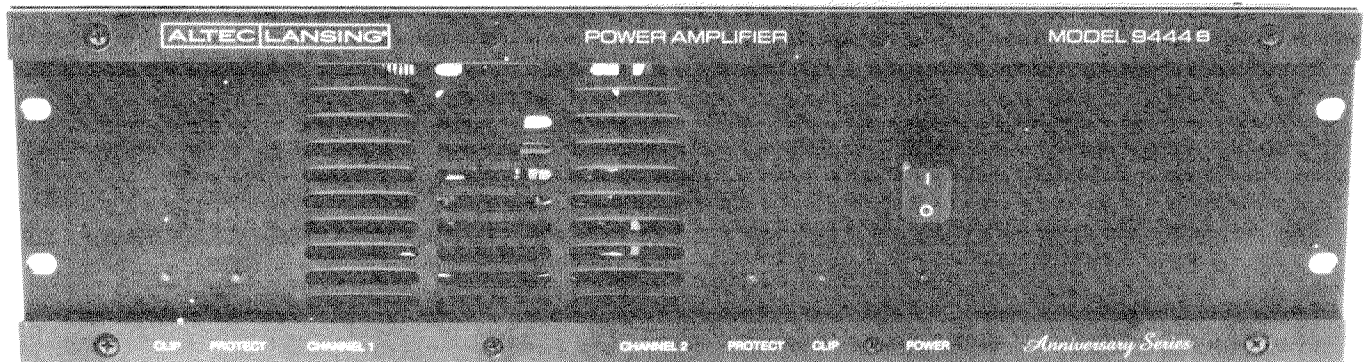


RUGGEDLY RELIABLE

DESIGNED FOR HIGH POWER/EXTENDED USE

9444B and 9444B/SA Anniversary Series Power Amplifiers



- 16 Metal Output Transistors Provide a Total Device Dissipation of 4,000 watts
- Patented Output Protection Circuitry (U.S. Patent No. 5,029,299)
- Superior Amplifier Cooling Provides Long Term Reliability
- UL and CSA Rated for Commercial Audio Systems

APPLICATIONS

- Auditoriums
- Arena/Stadiums
- Concert Sound
- Disco
- Houses of Worship
- Portable Sound

DESCRIPTION

The 9444B and 9444B/SA Anniversary Series power amplifiers are identical except for the addition of precision stepped attenuators on the 9444B/SA. Each channel delivers 200 watts of continuous average power into 8Ω or 300 watts into 4Ω over the full audio frequency range. In the bridge mode, the amplifier can deliver more than 600 watts at less than 0.01% THD.

Sixteen metal output transistors are utilized for a total device power dissipation of 4,000 watts. A dual speed fan is incorporated as an added reliability measure for the most thermally stressing situations. The massive 3/16 inch heatsink was specially engineered to minimize thermal gradients, as a result, the amplifier runs cooler enabling it to operate under more adverse environmental conditions without failure.

Each channel is independently protected against:

- Over-temperature
- Excessive output voltage
- Excessive phase shift
- Radio frequency interference
- Shorted output terminals

The load is protected from:

- Startup/shutdown transients
- Low ac line voltage
- Subsonic signals
- DC faults

The 9444B and 9444B/SA have electronically balanced inputs and powered octal accessory sockets for plug-in transformers and electronic modules. The level controls and the bridge switch are mounted on the rear panel to reduce the risk of "accidental" changes. Two 70 volt output balancing transformers, models 15524A (300 watt) and 15525A (600watt), and a 300 watt autoformer, model 15567A, are available as accessories.

SPECIFICATIONS FOR THE 9444B and 9444B/SA POWER AMPLIFIERS

Conditions:

- 0 dBu = 0.775 volts rms.
- Dual mode ratings are for each channel.
- Both channels operating at rated output power unless noted.
- 120 volt ac line input voltage maintained for all tests unless noted.

Continuous Rated Output Power:

(20 Hz - 20 kHz at less than 0.1% THD)

Dual mode, 4 Ω:	300 watts/ch
Bridge mode, 8 Ω:	600 watts
Dual mode, 8 Ω:	200 watts/ch
Bridge mode, 16 Ω:	400 watts

Continuous Rated Output Power to Subwoofer:

(20 Hz - 1 kHz at less than 0.1% THD)

Dual mode, 4 Ω:	375 watts/ch
Bridge mode, 8 Ω:	750 watts
Dual mode, 8 Ω:	225 watts/ch
Bridge mode, 16 Ω:	450 watts

Maximum Midband Output Power:

(Ref. 1 kHz, 1% THD, @120 volts ac line voltage)

Dual mode, 4 Ω:	>400 watts/ch
Bridge mode, 8 Ω:	>800 watts
Dual mode, 8 Ω:	>250 watts/ch
Bridge mode, 16 Ω:	>500 watts

(Ref. 1 kHz, 1% THD, @108 volts ac (10% sag))

Dual mode, 4 Ω:	>325 watts/channel.
Bridge mode, 8 Ω:	>650 watts.
Dual mode, 8 Ω:	>200 watts/channel.
Bridge mode, 16 Ω:	>400 watts.

(Ref. 1 kHz, 1% THD, @100 volts ac (17% sag))

Dual mode, 4 Ω:	>230 watts/channel.
Bridge mode, 8 Ω:	>460 watts.
Dual mode, 8 Ω:	>175 watts/channel.
Bridge mode, 16 Ω:	>350 watts.

Headroom (Before clip):

≥1 dB.

(Ref. 1 kHz, 1% THD, any mode)

Frequency Response:

10 Hz - 90 kHz.

(Ref. 1 kHz, 1 watt output, +0/-3 dB)

Power Bandwidth:

20 Hz - 20 kHz.

(Ref. 1 kHz, +0/-1 dB where 0 dB = rated output power in any mode)

Voltage Gain:

(Ref. 1 kHz)

Dual mode, 4 Ω or 8 Ω:	33 dB.
Bridge mode, 8 or 16 Ω:	39 dB.

Input Sensitivity for Rated Output Power:

(Ref. 1 kHz, ±0.15 dB)

Dual mode, 4 Ω:	+0.1 dBu (0.78 V rms).
Bridge mode, 8 Ω:	+0.1 dBu (0.78 V rms).
Dual mode, 8 Ω:	+1.2 dBu (0.89 V rms).
Bridge mode, 16 Ω:	+1.2 dBu (0.89 V rms).

Maximum Input Level:

+20 dBu (7.75 V rms).

(Ref. 1 kHz)

Input Impedance:

(Ref. 1 kHz)

Balanced:	15 kΩ.
Unbalanced:	15 kΩ.

Polarity:

Positive-going signal applied to pin 2 of XLR or (+) of barrier strip will produce a positive-going signal at (+) output terminal.

Phase Response:

(Any mode)

20 Hz:	<+25°.
20 kHz:	>-15°.

THD:

<0.1% (Typically <0.01%).

(Any mode, 30 kHz measurement bandwidth)

IMD (SMPTE 4:1):

<0.05% (Typically <0.01%).

(Any mode)

TIM (DIM 100):

<0.05%.

(Any mode)

Rise Time:

<6 μsec.

(Any mode, 10% to 90%)

Slew Rate:

Dual mode, 4 or 8 Ω: >30 V/μsec.

Bridge mode, 8 or 16 Ω: >60 V/μsec.

Damping Factor:

(Dual mode, 8 Ω)

20 Hz - 1 kHz:	>200
20 kHz:	>75

Crosstalk:

<75 dB.

(Ref. 1 kHz, 0 dB = rated output power into 8 ohms, single channel operating)

Noise:

>100 dB below rated output power.

(A-weighting filter, 8 Ω dual mode, 50/60 Hz ac line frequency.)

Amplifier Protection:

Shorted output terminals, Over-temperature, RF interference.

Load Protection:

Startup/shutdown transients, DC faults, Subsonic signals.

Cooling:

Heatsink:

Thermally equalized 3/16 inch aluminum black anodized heatsink.

Fan:

Thermostatically controlled dual speed fan. Approximately 50 CFM at low speed and 100 CFM at high speed. Ball bearing fan has minimum life rating of 50,000 hours at 25°C ambient temperature.

Output Topology: True complementary symmetry with grounded collectors. (Better heat transfer because no mica insulators are used.)

Output Type:
Dual mode: Each channel unbalanced.
Bridge mode: Balanced.

Output Devices:
Total number: 16 devices.
Pdmax rating: 250 watts.
Vceo: 250 volts DC.
Ic: 16 amps DC.
Tjmax: 200°C.

Controls and Switches:
Front Panel: Power switch.
Rear Panel: Two input level controls (9444B) or two precision stepped attenuators (9444B/SA), Mode switch.

Stepped Attenuator Step Sizes: (9444B/SA ONLY)

Maximum counter-clockwise position: OFF
Maximum clockwise position: 0 dB attenuation.
Attenuation per step from max. CW position:

Step No.	Attenuation.
1-20:	1 dB (20 dB attenuation at step 20)
21-25:	2 dB (30 dB attenuation at step 25)
26:	3 dB (33 dB attenuation at step 26)
27-29:	4 dB (45 dB attenuation at step 29)
30:	5 dB (50 dB attenuation at step 30)

Front Panel Indicators: Power LED, Clip LED (x2), Protect LED (x2).

Connections:
Input: 6 terminal barrier strip.
Female XLR (x2).
Octal accessory socket (x2), powered with +/-15 volts DC at 25 ma.
Output: 4 terminal barrier strip
Power: 8 ft, 3-wire, 16 GA power cord with NEMA 5-15 plug.

Fuse Type: Littelfuse Type 3AB 10A/250V Slo-Blo 326-series ceramic cartridge body, or equivalent (for 120 Vac use).

Power Requirements: 120 Vac, 50/60 Hz, 1000 watts. (Configurable to 220/240 Vac).
100 Vac, 50/60 Hz model available.

Operating ac Voltage Range: Nominal 120 Vac for full power output. Will operate from line voltages as low as 90 Vac with reduced power output.

Operating Temperature Range: Up to 60°C (140°F) ambient.

Power Consumption/Heat Produced:

(Both channels operating in dual mode with 1 kHz sinewave input signal at stated output power into 4Ω loads)
Idle: 72 watts/0.245 kBTU/hour.
1/8th max midband power: 720 watts/2.100 kBTU/hour.
1/3rd max midband power: 1,068 watts/2.702 kBTU/hour.
Rated output power: 1,464 watts/2.938 kBTU/hour.
Max midband power: 1,680 watts/2.873 kBTU/hour.

Dimensions (Rear of rack ears to max depth):

Height: 5.25 inches (13.3 cm).
Width: 19 inches (48.3 cm).
Depth: (Behind mounting surface.) 13 inches (33 cm).

Net Weight: 34 lbs.(15.5 kg).

Shipping Weight: 42 lbs.(19.1 kg).

Color: Black.

Enclosure: Rack mount chassis, 16 GA steel, 3/16 inch 5052 aluminum alloy front panel.

Standard Accessories: 4 - "U" jumper plugs for octal sockets. (2 per socket, installed)
1 - Operating Instructions and Service Manual.
1 - 5 A/250 V fuse. (For 220/240 Vac use.)

Optional Plug-in Input Accessories: 15581A 24 dB/octave Linkwitz-Riley Crossover.
15594A-xxx 18 dB/octave Low- Pass Filters.
15595A-xxx 18 dB/octave High- Pass Filters.
14712A Power Limiter.
15599A Bass Boost Module.
15015A Input Bridging Transformer.
15515A Input Bridging Transformer with Pad.

Optional Output Accessories: 15524A 300 watt 70 volt Output Transformer.
15525A 600 watt 70 volt Output Transformer.
15567A 300 watt Autoformer.

Design and Performance Approvals: Meets the requirements of UL Standard 813 and CSA C22.2 Standard #1.

ALTEC LANSING CORPORATION continually strives to improve products and performance. Therefore, these specifications are subject to change without notice.

Slo-Blo is a registered trademark of Littelfuse, Inc.

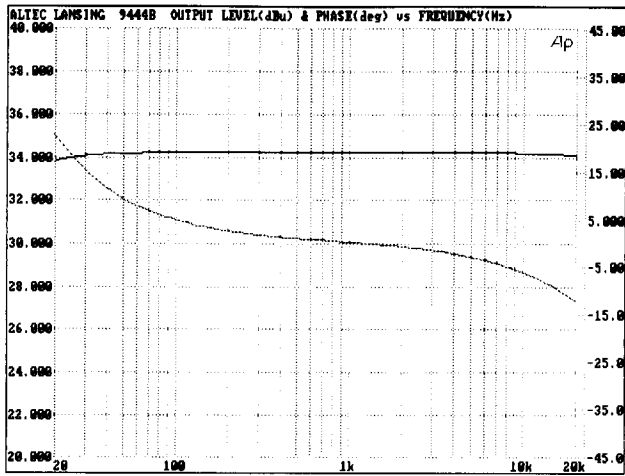


Figure 1. LEVEL (dBu) & Phase (deg) vs Frequency (Hz)

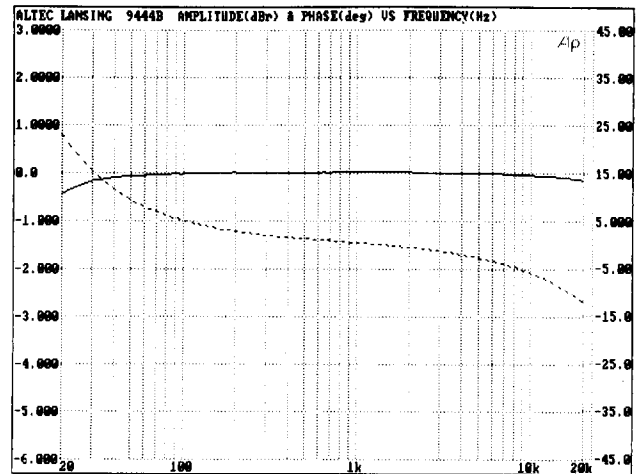


Figure 2. LEVEL (dBr) & Phase (deg) vs Frequency (Hz)

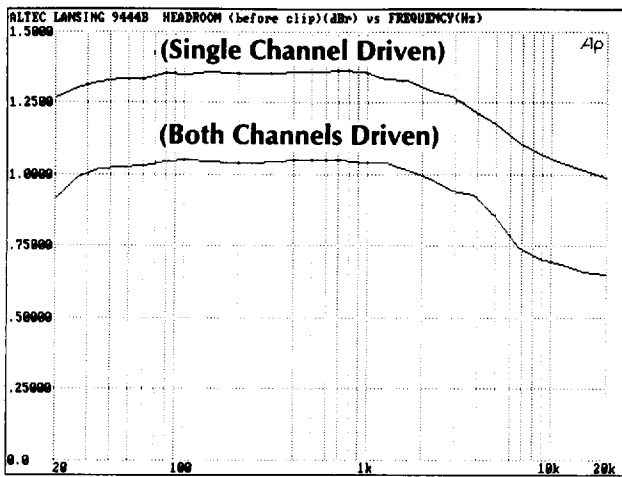


Figure 3. Headroom LEVEL (dBr) vs Frequency (Hz)

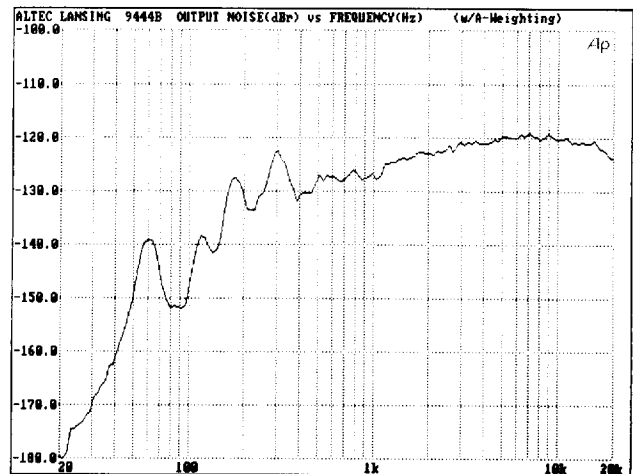


Figure 4. A-weighted Noise (dBr) vs Frequency (Hz)

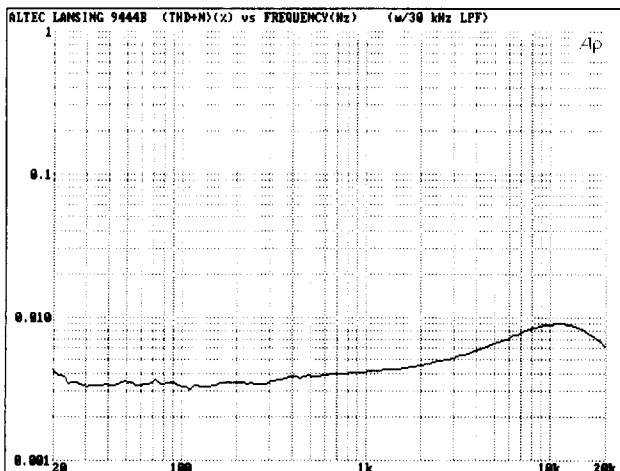


Figure 5. (THD+N) (%) vs Frequency (Hz)

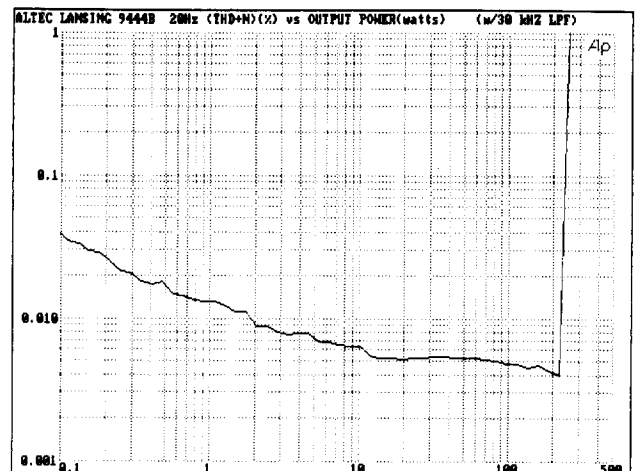


Figure 6. 20 Hz (THD+N) (%) vs Output Power (W)

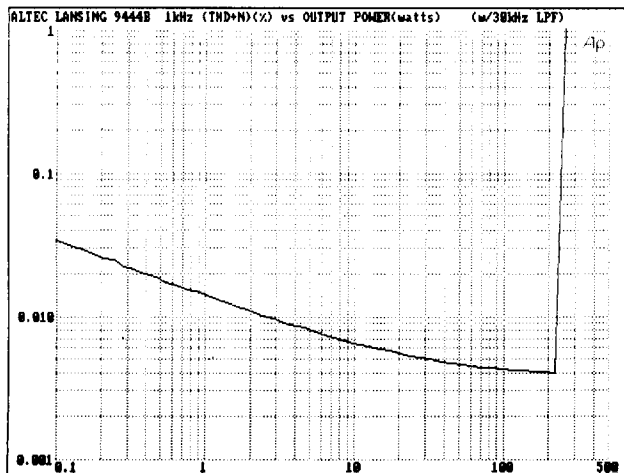


Figure 7. 1 kHz (THD+N) (%) vs Output Power (W)

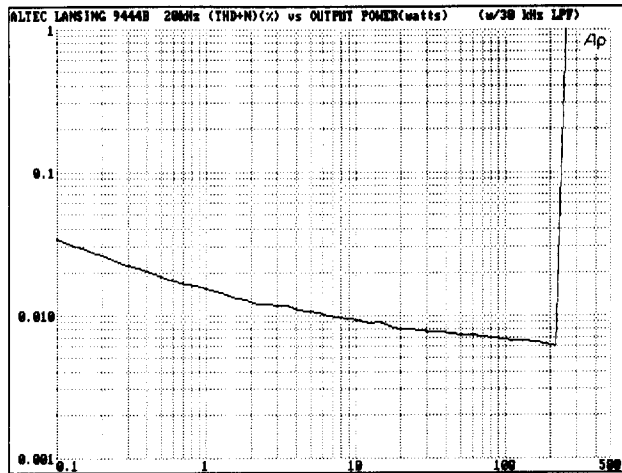


Figure 8. 20 kHz (THD+N) (%) vs Output Power (W)

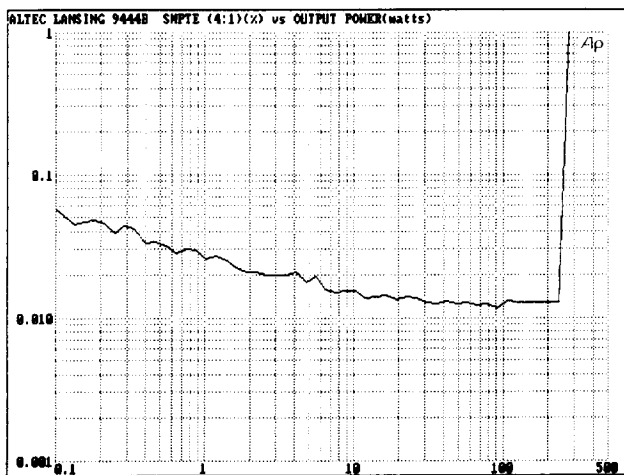


Figure 9. SMPTE (%) vs Output Power (W)

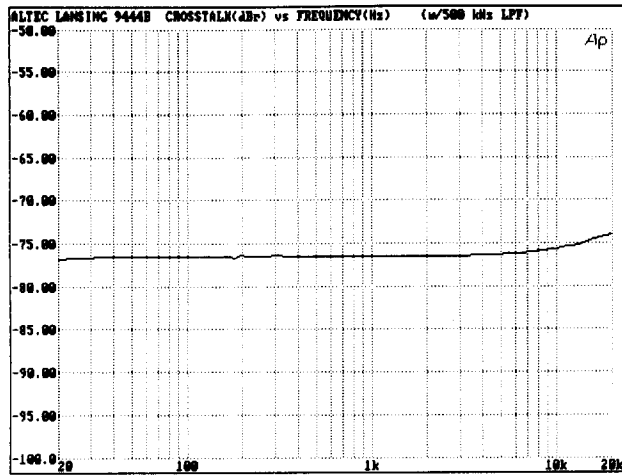


Figure 10. Crosstalk (dB) vs Frequency (Hz)

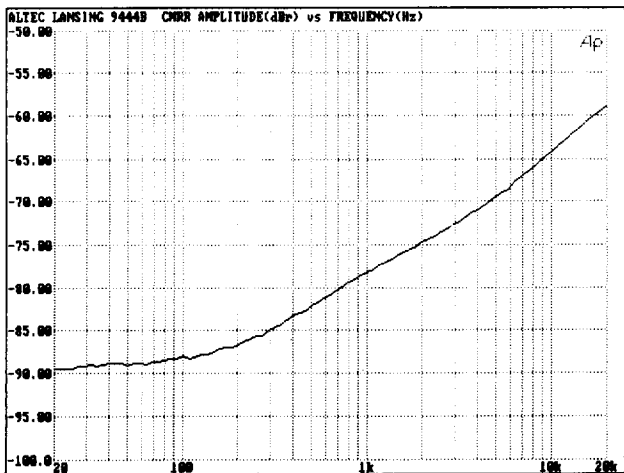
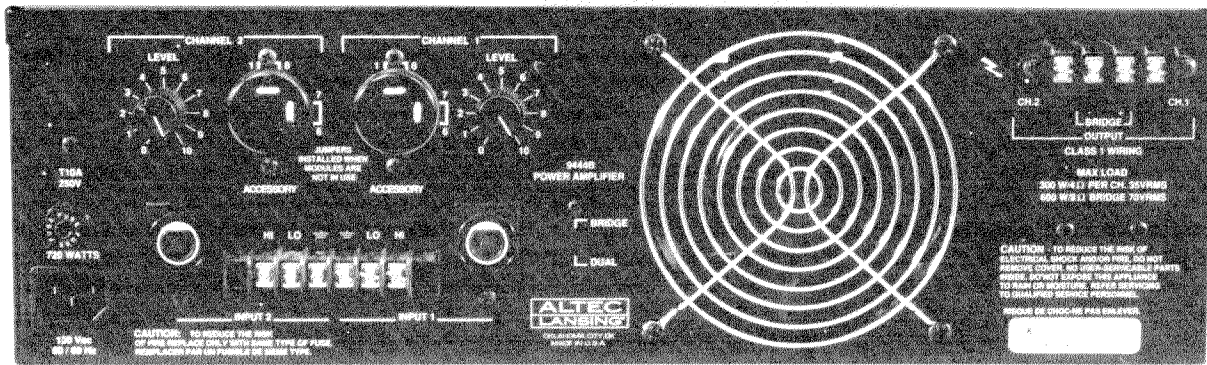


Figure 11. CMRR (dBr) vs Frequency (Hz)

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PRIN



ARCHITECT'S and ENGINEER'S SPECIFICATION

The dual channel power amplifier shall be of solid state design employing true complementary symmetry output circuitry with grounded collectors and capable of operating from either a 120 Vac or 240 Vac line at either 50 or 60 Hz. The amplifier shall contain sensing circuitry to provide protection against over-temperature, shorted output terminals, and radio frequency interference. The load shall be similarly protected against subsonic signals, startup/shutdown transients, and DC faults.

On the rear panel shall be a two position mode switch for selecting between the dual channel mode or the bridged single channel mode, and individual rotary input level controls. Input connections for each channel shall include a powered octal accessory socket for use with optional plug-in accessory modules, a 3-pin female XLR connector, and a barrier strip connector. Output terminals shall be a barrier strip connector.

Front panel indicators shall include an illuminated power on/off indicator, individually illuminated clipping ("CLIP") indicators, and individually illuminated protection circuit activation ("PROTECT") indicators. The only front panel control shall be the power on/off switch.

The power amplifier shall meet the following performance criteria. Maximum input voltage: 7.75 V rms. Input sensitivity for rated output power into a 4 ohm load: 0.784 V rms. Rated output power: not less than 300 watts per channel into 4 ohms from

20 Hz to 20 kHz at less than 0.1 % THD; not less than 200 watts per channel into 8 ohms from 20 Hz to 20 kHz at less than 0.1% THD; not less than 400 watts into 16 ohm bridged load from 20 Hz to 20 kHz at less than 0.1% THD; and not less than 600 watts into 8 ohm bridged load from 20 Hz to 20 kHz at less than 0.1% THD. Voltage gain in dual mode shall be 33 dB or greater. Hum and noise: at least 100 dB (A-wtd) below rated output power. Frequency response: 20 Hz to 20 kHz, +0/-1 dB or better at any power up to rated output power. Damping factor: greater than 200 at any frequency up to 1 kHz in dual mode with 8 ohm loads. Intermodulation distortion (SMPTE 4:1): less than 0.05%. Transient intermodulation distortion (DIM 100): less than 0.05%. Crosstalk: less than 75 dB below rated output power. Operating temperature range: up to 60°C (140°F) ambient. Dimensions: not larger than 5.25 inches in height by 19 inches in width and not deeper than 13 inches behind the mounting surface. The net weight shall not exceed 34 pounds.

Finish color shall be black. The chassis shall be rack mountable without the addition of any accessory mounting brackets. The chassis shall be fabricated of 16 GA steel with a 3/16 inch thick 5052 aluminum alloy front panel.

The dual channel power amplifier shall be the ALTEC LANSING Model 9444B [9444B/SA].



a MARK IV company

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