

# Reference: by Quadraflex



The Sound Answer.



## Reference:

**A significant new generation of high fidelity components from Quadraflex. Here is the alternative for people who are serious about sound and tired of never-ending competitive performance claims. Reference components — the sensible choice for people with a keen eye for value.**

Reference™ components are engineered for a single purpose — fine music listening in the home. Their specifications satisfy professional criteria and exceed them only to the extent that they affect the quality of sound reproduction. Not merely to “one-up” competing manufacturers. Instead of costly expendable wattage and superfluous gadgetry, Reference offers clean sound that is comparable to any electronic mammoth — but in the price range of most music lovers.

Reference provides as much power as most people would ever need; power that is so pure and so real that it can achieve higher undistorted sound levels than conventional receivers. A variety of models offer unique features. Where cost permits, Reference includes extraordinary control flexibility, assuring maximum performance within actual listening environments.

What we include is there solely to control and improve the appreciable quality of recorded music. Reference provides exactly what you need in a high quality music system. Not what you've been told you need.

Reference components. They're beautiful because they're functional. And because what really matters is the sound.



## Specifications

AM/FM  
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nsitivity  
music

**18 watts per channel,**  
minimum RMS power output  
at 8 ohms, 20-20,000 Hz,  
0.15% total harmonic  
distortion. (12.55 dBw)  
THD at 1 watt: .05%

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**Preamplifier**  
Signal-to-Noise Ratio:  
Phono 70 dB, Tape Mon  
75 dB, Aux 75 dB  
Phono Overload: 120 mV  
RIAA Equalization:  $\pm .5$  dB  
Tone Control Range:  
Bass  $\pm 10$  dB at 100 Hz,  
Treble  $\pm 10$  dB at 10 kHz

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## FM Section

IHF Sensitivity for 30 dB  
quieting: mono 1.9  $\mu$ V (10.8  
dBf); stereo 4.5  $\mu$ V (18.3  
dBf). For 50 dB quieting:  
mono 3.0  $\mu$ V (14.8 dBf);  
stereo 38  $\mu$ V (36.8 dBf)  
Channel Separation at 1 kHz:  
without MPX Blend 38 dB,  
with MPX Blend 24 dB  
THD: mono .25%; stereo .5%  
Signal-to-Noise Ratio: 70 dB  
Capture Ratio: 2 dB  
Alternate Channel Selectivity:  
65 dB  
IF Response Ratio: 90 dB  
Image Rejection Ratio: 50 dB

## Specifications

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**24 watts per channel,**  
minimum RMS power output  
at 8 ohms, 20-20,000 Hz,  
0.15% total harmonic  
distortion. (13.80 dBw)  
THD at 1 watt: .05%

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**Preamplifier**  
Signal-to-Noise Ratio:  
Phono 72 dB, Tape Mon  
78 dB, Aux 78 dB  
Phono Overload: 120 mV  
RIAA Equalization:  $\pm .5$  dB  
Tone Control Range:  
Bass  $\pm 10$  dB at 100 Hz,  
Treble  $\pm 10$  dB at 10 kHz

## FM Section

IHF Sensitivity for 30 dB  
quieting: mono 1.9  $\mu$ V (10.8  
dBf); stereo 4.5  $\mu$ V (18.3  
dBf). For 50 dB quieting:  
mono 2.8  $\mu$ V (14.2 dBf);  
stereo 36  $\mu$ V (36.4 dBf)  
Channel Separation at 1 kHz:  
without MPX Blend 40 dB,  
with MPX Blend 24 dB  
THD: mono .22%; stereo .45%  
Signal-to-Noise Ratio: 70 dB  
Capture Ratio: 1.9 dB  
Alt. Channel Selectivity: 68 dB  
IF Response Ratio: 95 dB  
Image Rejection Ratio: 55 dB



## Specifications

**30 watts per channel,**  
minimum RMS power output  
at 8 ohms, 20-20,000 Hz,  
0.1% total harmonic  
distortion. (14.77 dBw)  
THD at 1 watt: .05%

### Preamplifier

Signal-to-Noise Ratio:  
Phono 75 dB, Tape Mon  
80 dB, Tape 3/Aux 80 dB  
Phono Overload: 125 mV  
RIAA Equalization:  $\pm .4$  dB  
Tone Control Range:  
Bass  $\pm 10$  dB at 100 Hz,  
Treble  $\pm 10$  dB at 10 kHz

### FM Section

IHF Sensitivity for 30 dB  
quieting: mono 1.8  $\mu$ V (10.3  
dBf); stereo 4.3  $\mu$ V (17.9  
dBf). For 50 dB quieting:  
mono 2.8  $\mu$ V (14.2 dBf);  
stereo 36  $\mu$ V (36.4 dBf)  
Channel Separation at 1 kHz:  
without MPX Blend 42 dB,  
with MPX Blend 24 dB  
THD: mono .2%; stereo .4%  
Signal-to-Noise Ratio: 72 dB  
Capture Ratio: 1.8 dB  
Alt. Channel Selectivity: 68 dB  
IF Response Ratio: 95 dB  
Image Rejection Ratio: 60 dB

## Specifications

**45 watts per channel,**  
minimum RMS power output  
at 8 ohms, 20-20,000 Hz,  
0.1% total harmonic  
distortion. (16.53 dBw)  
THD at 1 watt: .025%  
IM Distortion at 1 watt: .04%

### Preamplifier

Signal-to-Noise Ratio:  
Phono 75 dB, Tape Mon  
80 dB, Tape 3/Aux 80 dB  
Phono Overload: 200 mV  
RIAA Equalization:  $\pm .4$  dB  
Tone Control Range: Bass  $\pm 10$   
dB at 50 Hz, with 150 Hz  
turnover,  $\pm 10$  dB at 100 Hz  
with 300 Hz turnover, Treble  
 $\pm 10$  dB at 10 kHz with

6 kHz turnover,  $\pm 10$  dB at  
10 kHz with 3 kHz turnover

### FM Section

IHF Sensitivity for 30 dB  
quieting: mono 1.7  $\mu$ V (9.8  
dBf); stereo 4.2  $\mu$ V (17.7  
dBf). For 50 dB quieting:  
mono 2.6  $\mu$ V (13.5 dBf);  
stereo 34  $\mu$ V (35.9 dBf)  
Channel Separation at 1 kHz:  
without MPX Blend 44 dB,  
with MPX Blend 24 dB  
THD: mono .1%; stereo .15%  
Signal-to-Noise Ratio: 72 dB  
Capture Ratio: 1.2 dB  
Alt. Channel Selectivity: 70 dB  
IF Response Ratio: 95 dB  
Image Rejection Ratio: 60 dB





## ETR Specifications

**65 watts per channel,**  
minimum RMS power output  
at 8 ohms, 20-20,000 Hz,  
0.1% total harmonic  
distortion. (18.13 dBw)

THD at 1 watt: .01%  
IM Distortion at 1 watt: .02%

### Preamplifier

Signal-to-Noise Ratio:

Phono 80 dB, Tape Mon  
85 dB, Tape 3/Aux 85 dB

Phono Overload: 200 mV

RIAA Equalization:  $\pm .25$  dB

Tone Control Range: Bass  $\pm 10$

dB at 50 Hz, with 150 Hz

turnover,  $\pm 10$  dB at 100 Hz

with 300 Hz turnover, Treble

$\pm 10$  dB at 20 kHz with

6 kHz turnover,  $\pm 10$  dB at

10 kHz with 3 kHz turnover

### FM Section

IHF Sensitivity for 30 dB  
quieting: mono  $1.7 \mu\text{V}$  (9.8  
dBf); stereo  $4.2 \mu\text{V}$  (17.7  
dBf). For 50 dB quieting:  
mono  $2.6 \mu\text{V}$  (13.5 dBf);  
stereo  $34 \mu\text{V}$  (35.9 dBf)

Channel Separation at 1 kHz:  
without MPX Blend 44 dB,  
with MPX Blend 24 dB

THD: mono .1%; stereo .15%

Signal-to-Noise Ratio: 72 dB

Capture Ratio: 1 dB

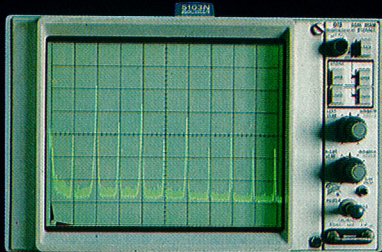
Alt. Channel Selectivity: 72 dB

IF Response Ratio: 95 dB

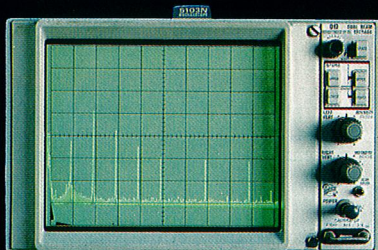
Image Rejection Ratio: 60 dB

## MOSFET Transistors

The Reference 650FETR employs an entirely new type of amplifier circuit. MOSFET output transistors amplify sound with far more accuracy than even the best bi-polar output devices. The accompanying oscilloscope photos reveal the vastly reduced harmonic distortion at frequencies within and far beyond conventional limits. Reducing distortion beyond the upper limits of hearing provides a subtle improvement. It is the new state-of-the-art. Defined by Reference.



10 kHz fundamental and higher-order harmonic distortion of high quality conventional receiver.



Same frequencies reproduced with far lower distortion by the Reference 650FETR.



## Specifications

Frequency Response:  
30-15,000 Hz  $\pm$  3 dB;  
30-16,000 Hz  $\pm$  3 dB with  
CrO<sub>2</sub> or super-high output  
tape  
Signal-to-Noise Ratio: 56 dB  
with Dolby\* off; 62 dB with  
Dolby on  
THD: 1.2% with Dolby off; less  
than 1% with Dolby on  
Crosstalk at 1 kHz: 55 dB  
Wow and Flutter: .06% WRMS  
Speed Accuracy: within 1%

\* "Dolby" and the double-D symbol  
are trademarks of and used under  
license from Dolby Laboratories Inc.

## Additional Features

Precision dB calibrated meters  
Two peak level LED's  
Memory stop to locate a  
desired point in a recording  
Full auto stop at end of tape  
in any mode

## Specifications

Two speeds: 33 $\frac{1}{3}$  & 45 rpm  
Signal-to-Noise Ratio: Better  
than 70 dB  
Wow and Flutter: Less than  
.03% WRMS  
Motor: 20-pole, 30-slot DC  
servo direct drive  
Speed Adjustment:  $\pm$  3%

## Special Features

Ultra-low mass tonearm  
accommodates the finest  
phono cartridges (not  
included)  
DC direct drive motor  
Massive die-cast platter  
Semi-automatic operation.  
Tonearm lifts and shuts off at  
end of play.

