

PRO AUDIO REVIEW

EQUIPMENT REVIEW
REPRINTED FROM
JUNE 1997

ON THE BENCH



GRACE DESIGN MODEL 201 MICROPHONE PREAMPLIFIER

GAIN	
Minimum	6.11 dB
Maximum	63.4 dB
Coarse adjust steps	2 dB
Fine adjust range	11 dB
Frequency Response	20 Hz to 20 kHz, +0/-2 dB 10 Hz, -77 dB 100 kHz, -24 dB
THD+N	
-40 dB input 1 kHz	< .015%, 20 Hz to 50 kHz (10 Hz to 80 kHz filter) (22 Hz to 80 kHz filter)
-74 dBu input	.53% (-30 dBu out)
-54 dBu input	.052% (-10 dBu out)
-34 dBu input	.0067% (10 dBu out)
-16 dBu input	.0023% (28 dBu out)
INTERMODULATION DISTORTION (SMPTE 4:1, 60 Hz, 7 kHz)	
-40 dBu input	.006% (4 dBu out)
-24 dBu input	.0025% (20 dBu out)
CLIPPING LEVELS	
Maximum input level	+0.1 dBu input
Maximum output level	+29 dBu output
EIN (Equivalent Input Noise, maximum gain [63.4 dB])	
22 Hz to 80 kHz bw	-121.4 dBu
22 Hz to 22 kHz bw	-129 dBu
RESIDUAL NOISE (150 ohm input, oscillator off)	
10 Hz to 500 kHz bw	-68.77 dBu
22 Hz to 22 kHz bw	-81.5 dBu
PHASE DEVIATION	
50 Hz to 20 kHz	< 5 degrees
20 Hz to 20 kHz	< 12 degrees

All tests using 150 ohm source impedance, 44 dB gain, 100 k load, unless otherwise noted.

The Grace Design Model 201 dual channel microphone preamplifier is built with care and attention to detail. This is as apparent visually as it is with test equipment and in listening. The test data show a unit that competes with the finest, most transparent solid state microphone preamps.

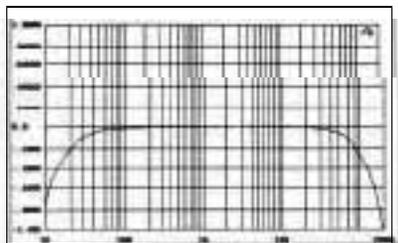
A few of the manufacturers' stated specifications were better than I measured, though my measurements proved the unit to test quite superbly. The specifications list the frequency response as ± 2 dB, from 20 Hz to 300 kHz. The test unit fairly met the 20 Hz rating, but I measured essentially flat well beyond the most optimistic reaches of audibility. The high-frequency -1 dB point measured was 60 kHz and -2 dB was at 90 kHz.

THD+N measured as claimed. The numbers obtained in testing were excellent, and could have been more so if I had reduced the test bandwidth to the 20 Hz-22 kHz range only. IMD measurements easily met the specs, and were still impressive at moderate levels. FFT spectrum analysis showed no identifiable artifacts, other than wide band noise, until the onset of clipping (and clipping was reached at a respectable +29 dBu).

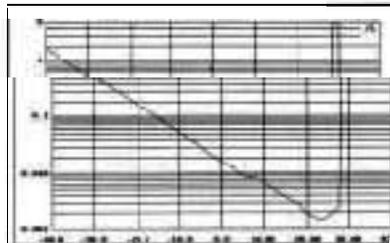
Common mode rejection, crosstalk, EIN, residual noise and phase response are all comparable to measurements of the best of this class of preamp. Measured phase response (input versus output phase) was not quite as good as the specified 2-degree maximum deviation from 50 Hz-20 kHz. The AP showed a deviation of near 5 degrees at 50 Hz, and around 12 degrees at 20 Hz.

On the bench, the Grace Design Model 201 seems a reference-class device. It is certainly worthy of a practical audition.

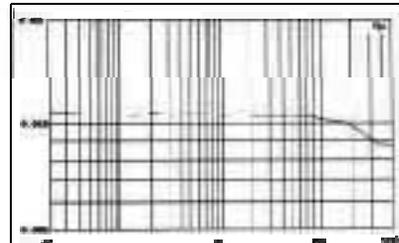
-Frank L. Wells



Frequency Response. -40 dBu input, 150 ohms. 44 dB gain.



THD+N vs. Level. 1 kHz, 150 ohm, swept from -84 dBu to -4 dBu 44 dB gain.



THD+N vs Frequency. -40 dBu input, 150 ohms. 44 dB gain. 10 Hz to 80 kHz bandwidth.