



Telephone Message & Circuit Noise Measurement

C-Message Response

Description

The D51 is designed specifically to provide the C-message weighting frequency response specified in Bell System Technical Reference 41009 for telephone message circuit noise measurement. The theoretical C-message characteristic simulates the perceived response of the human ear to telephone noise.

The D51 filter provides a close, ± 1 db approximation to the theoretical C-message weighting function from 60 Hz to 5.0 kHz.

Applications

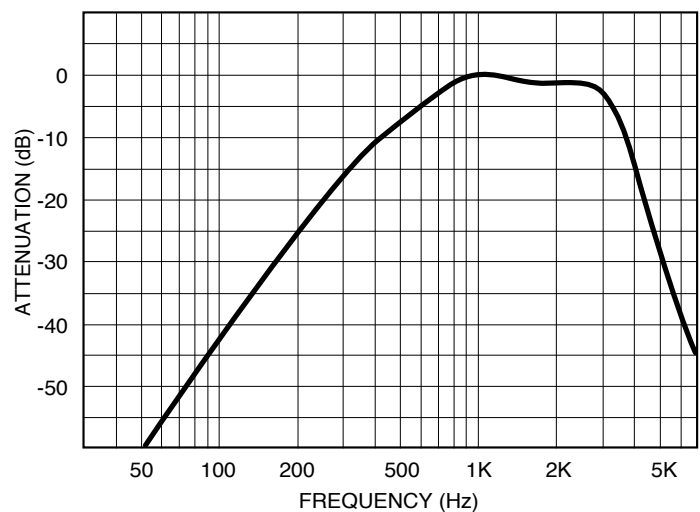
- Telephone Message Circuit Noise Measurement
- Test Equipment



Theoretical Frequency Response

Frequency Hz	Attenuation dB	Tolerance \pm dB
60	55.7	1
100	42.5	1
200	25.0	1
300	16.5	1
400	11.4	1
500	7.5	1
600	4.7	1
700	2.7	1
800	1.5	1
900	0.6	1
1000	0.0	0.1
1200	0.2	1
1300	0.5	1
1500	1.0	1
1800	1.3	1
2000	1.3	1
2500	1.4	1
2800	1.9	1
3000	2.5	1
3300	5.2	1
3500	7.6	1
4000	14.5	1
4500	21.5	1
5000	28.5	1

Frequency Response Curve





Specifications (25°C and $V_s \pm 15$ Vdc)

Pin-Out and Package Data Ordering Information

Analog Input Characteristics

Impedance	10 k Ω min.
Source Impedance ¹	600 Ω max.
Bias Current ²	0
Voltage Range	± 10 V peak
Maximum Safe Voltage	$\pm V_s$

Analog Output Characteristics

Impedance (Closed Loop)	< 1 Ω typ. 10 Ω max.
Linear Operating Range	± 10 V
Maximum Current ³	± 2 mA
Offset Voltage	± 5 mV
Offset Temp. Coeff.	50 μ V / °C
Noise ⁴	50 μ V _{RMS}

Gain (non-inverting)	0 ± 0.1 dB @ 1 kHz
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Power Supply ($\pm V_s$)

Rated Voltage	± 15 Vdc
Operating Range	± 5 to ± 18 Vdc
Maximum Safe Voltage	± 18 Vdc
Quiescent Current	± 1.5 mA typ. ± 2.0 mA max.

Temperature

Operating	0 to + 70 °C
Storage	- 25 to + 85 °C

Notes:

1. Maximum allowable series input resistance if gain accuracy's are to be maintained.
2. Capacitor coupled.
3. Output is short circuit protected to common.
DO NOT CONNECT TO $\pm V_s$.
4. DC to 50 kHz excluding DC offset with input grounded.

