Z56 - Podstawy fizyki szumów

Kalibracja filtrów

	Ustawienie górnoprzepustowe i)			Ustawienie dolnoprzepustowe ii)		
Ustawiona częstotliwość graniczna [Hz]	fc [Hz]	g	γ	Częstotliwość progowa [Hz]	g	γ
Filtry wysokich częstotliwości						
330	336.583 ±0.055	0.99026 ±0.00016	0.70928 ±0.00022	334.62 ±0.63	0.99538 ±0.00039	0.7043 ±0.0014
1k	1004.64 ±0.45	0.98866 ±0.00047	0.71095 ±0.00062	1007.08 ±0.67	0.99775 ±0.00014	0.70930 ±0.00051
3.3k	3369.6 ±1.6	1.00027 ±0.00088	0.71374 ±0.00087	3359.4 ±2.0	0.99738 ±0.00011	0.70970 ±0.00045
10k	10076.5 ±4.0	0.99602 ±0.00030	0.71111 ±0.00046	10083.0 ±6.6	0.99750 ±0.00010	0.70943 ±0.00047
33k	34038 ±56	1.02962 ±0.00099	0.7185 ±0.0019	33907 ±21	0.99611 ±0.00019	0.70849 ±0.00055
100k	104538 ±41	1.08675 ±0.00095	0.71059 ±0.00075	104213 ±74	0.99624 ±0.00015	0.70781 ±0.00056
Filtry niskich częstotliwości						
100	100.143 ±0.019	0.98989 ±0.000072	0.71127 ±0.00017	99.56 ±0.14	0.99788 ±0.00041	0.7043 ±0.0012
300	301.318 ±0.057	0.990380 ±0.000078	0.70923 ±0.00017	299.73 ±0.58	0.99475 ±0.00041	0.7046 ±0.0015
1k	1005.82 ±0.19	0.990980 ±0.000078	0.70839 ±0.00017	999.1 ±2.5	0.99389 ±0.00047	0.7041 ±0.0019
3k	3019.69 ±0.46	0.99300 ±0.00013	0.70813 ±0.00018	3001.7 ±8.2	0.99407 ±0.00045	0.7047 ±0.0020

i) $$G_{GP}(f) = \frac{g*\left(\frac{f}{f_c}\right)^2}{\sqrt{\left(1-\left(\frac{f}{f_c}\right)^2\right)^2+\left(\frac{2\gamma f}{f_c}\right)^2}}$$

ii) $$G_{DP}(f) = \frac{g}{\sqrt{\left(1-\left(\frac{f}{f_c}\right)^2\right)^2+\left(\frac{2\gamma f}{f_c}\right)^2}}$$

Kalibracja odczytu temperatury

$$\left(\Delta V(T)\right)_{i=cons.} = d_1 - d_2 * T - d_3 * T * \ln T$$

Prąd	d_1 [V]	d_2 [V/K]	d_3 [V/K]
10 nA	1.1197	7.530E-4	3.426E-4
100 nA	1.1197	5.452E-4	3.426E-4
1 µA	1.1197	3.445E-4	3.426E-4
10 µA	1.1197	1.438E-4	3.426E-4
100 µA	1.1197	-5.702E-5	3.426E-4

Prąd	Ciekły azot (77 K)	Suchy lód (194.7 K)	Temp. Pokojowa (295.35 K)
10 nA	0.941 V	0.620 V	0.324 V
100 nA	0.961 V	0.661 V	0.384 V
1 µA	0.979 V	0.701 V	0.442 V
10 µA	0.997 V	0.741 V	0.500 V
100 µA	1.014 V	0.780 V	0.559 V