

# Results of parametric study of omc DCPD whitening for different whitening filter combinations with and without DC offset

50.00 Hz  
20 → 1 kHz  
10mV Drive  
1000points

23.370 dB	153.3°	F1 & F2 4.99 VDC	HEAD A ↓
23.371	153.3°	REPEATABILITY CHECK F1 & F2 4.99 VDC	
23.374	152.1	F1 & F2 NO DC	
5.735	-0.3709	NO FILT, NO DC	
5.516	-0.3759	NO FILT, 4.99 VDC	
43.553	163.5°	3 FILT, 4.99 VDC	
43.613	162.7°	3 FILT, NO DC	
25.972	10.27°	FILTER 1 ONLY, 4.99 VDC	
26.181	10.28°	FILTER 1 ONLY, NO DC	

**FIXED CHASSIS**

43.444	161.5 deg	3 FILT. NO DC
43.438	161.4 deg	3 FILT. 4.99 VDC

**HEAD B**  
↓

50.865 Hz

43.385	160.7 deg	3 FILT, NO DC
43.377	160.7 deg	3 FILT, 4.99 VDC

199.997 Hz  
20 → 1 kHz  
10mV Drive  
1000points

15.190 dB	126.5°	F1 & F2 4.99 VDC	HEAD A ↓
15.189	126.5°	REPEATABILITY CHECK F1 & F2 4.99 VDC	
15.044	126.8°	F1 & F2 NO DC	
5.733	-1.497°	NO FILT, NO DC	
5.516	-1.50°	NO FILT, 4.99 VDC	
35.491	129.1°	3 FILT, 4.99 VDC	
35.450	129.4°	3 FILT, NO DC OFFS.	
26.146	1.1°	FILTER 1 ONLY, 4.99 VDC	
26.354	1.1°	FILTER 1 ONLY, NO DC	

**FIXED CHASSIS**

35.083 dB	129.4 deg	3 FILT. NO DC
35.075 dB	129.5 deg	3 FILT. 4.99 VDC

**HEAD B**  
↓

201.77 Hz

35.036 dB	129.4 deg	3 FILT. NO DC
35.022 dB	129.4 deg	3 FILT. 4.99 VDC

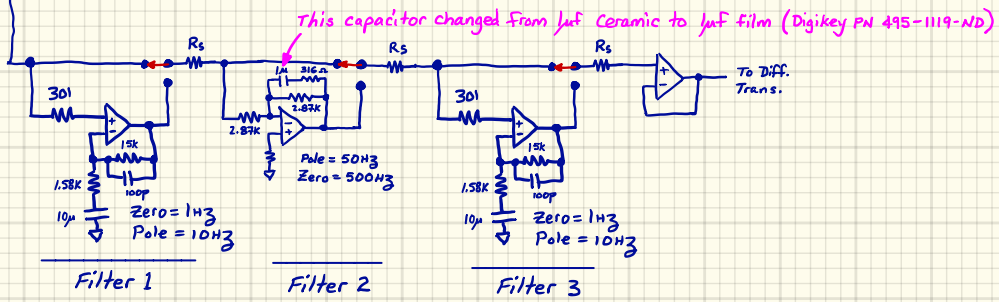
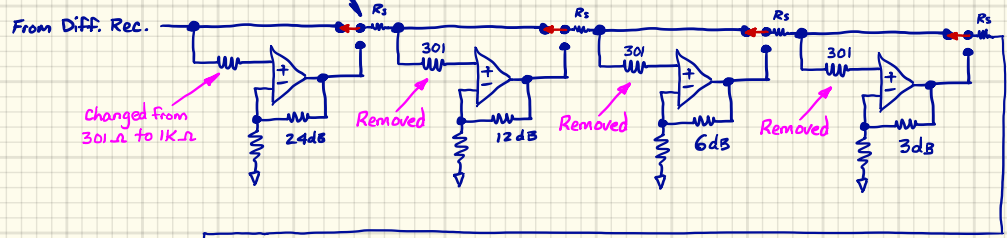
= NO DC

# Simplified OMC DCPD Whitening Amp. D0100/530-V7

3 MARCH 2019  
LHO  
R. ABBOTT

All switches MAX4659  
Rs 18Ω Typical

## DC GAIN STAGES



## File names for data taken on SR785

5 Hz  $\rightarrow$  100 kHz  
1000pts  
10 mV source

### File Name

20 & 21	Mag & phase	3 Filt NO DC	} PDA PWS 5 & 18 Info Split whitening
22 & 23	Mag & phase	3 Filt 4.99 VDC	
24 & 25	mag & phase	F1 & F2, NO DC	
26 & 27	mag & phase	F1, NO DC	
28 & 29	mag & phase	NO DC NO FILTERS	

30 & 31	Mag & phase	NO DC NO FILTERS	} PD B PWS 1 & 14 Info Split whitening
32 & 33	Mag & phase	F1, NO DC	
34 & 35	mag & phase	F1 & F2, NO DC	
36 & 37	mag & phase	3 Filt NO DC	
38 & 39	mag & phase	3 Filt 4.99 VDC	

## Circuit change summary DO1001530-V7 Circuit Board

1. Removed R11 (301  $\Omega$ ) from DC gain stages associated with 3dB, 6dB, & 12dB stages to prevent any dynamic loading effects associated with saturating these stages
2. We left the 24dB stage functional, but increased the input resistor (R11) from 301  $\Omega$  to 1k  $\Omega$  to avoid loading the differential driver when this stage saturates.
3. changed the 1  $\mu$ F capacitor on the second Filter stage from ceramic to Film type (Digikey PN 495-1119-ND)
4. For each of the now unused DC gain stages, the positive input (pin 3) was tied to ground.

chassis D100259 S1101627

