RADIATION TEST REPORT

PRODUCT:	AD8138ALQMLR
DATE CODE:	0914
GAMMA:	0, 30k, 50k, 100k
GAMMA SOURCE:	Co60
DOSE RATE:	7.7 mRad/s
FACILITIES:	University of Massachusetts @ Lowell
TESTED:	2009/2010

The RADTEST[SM] DATA SERVICE is a compilation of radiation test results on Analog Devices' Space grade products. It is designed to assist customers in selecting the right product for applications where radiation is a consideration. Many products manufactured by Analog Devices, Inc. have been shown to be radiation tolerant to most tactical radiation environments. Analog Devices, Inc. does not make any claim to maintain or guarantee these levels of radiation tolerance without lot qualification test.

It is the responsibility of the Procuring Activity to screen products from Analog Devices, Inc. for compliance to Nuclear Hardness Critical Items (HCI) specifications.

WARNING:

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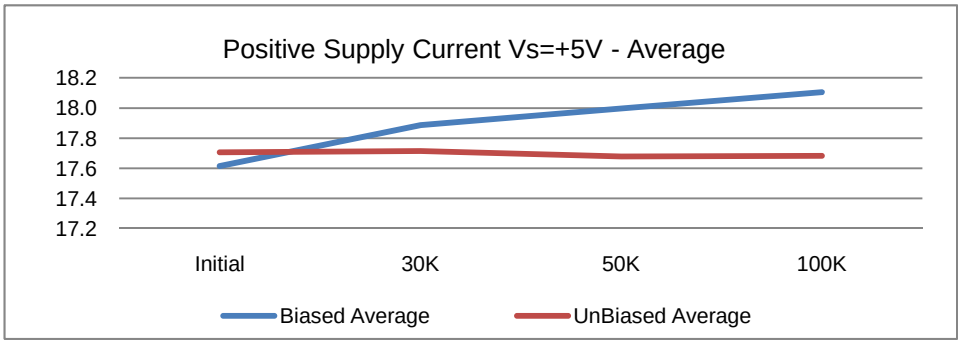
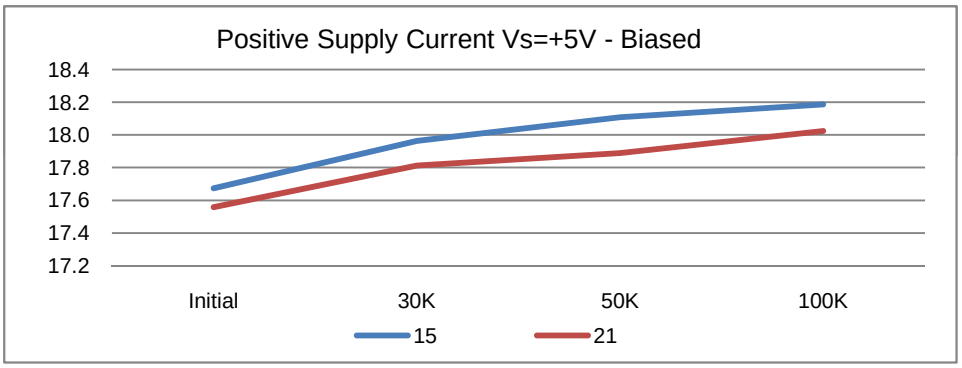
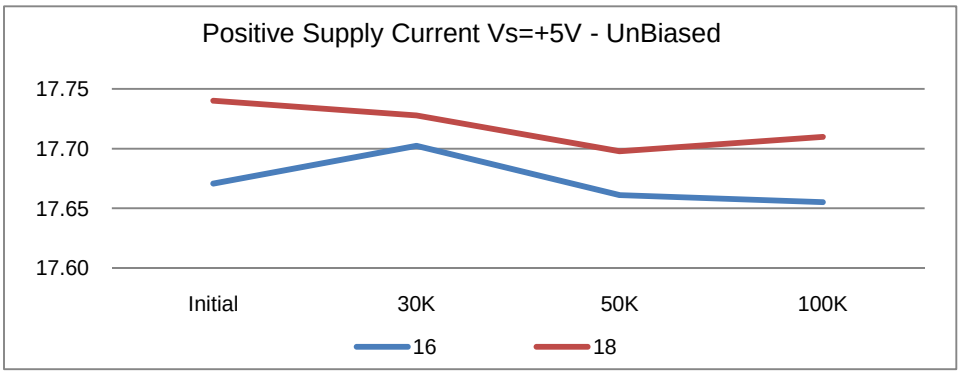
ANALOG DEVICES

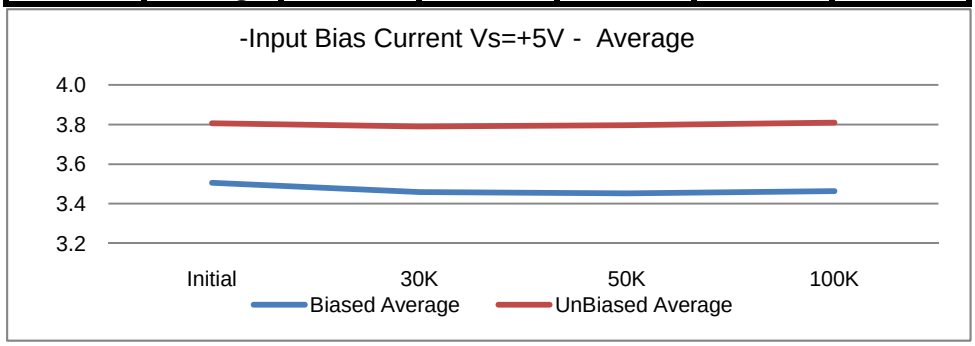
	T# 1	+Is @ Vs=5v				mA
	SN	Initial	30K	50K	100K	Limit
Control	20	17.58295	17.63914	17.63914	17.81235	<21
Biased	15	17.67436	17.96225	18.10763	18.18531	
	21	17.55736	17.81217	17.88803	18.02442	
	Min	17.5574	17.8122	17.8880	18.0244	
	Max	17.6744	17.9623	18.1076	18.1853	
	Average	17.6159	17.8872	17.9978	18.1049	
UnBiased	16	17.67071	17.70235	17.6611	17.65512	
	18	17.74018	17.72797	17.6977	17.710	
	Min	17.6707	17.7024	17.6611	17.6551	
	Max	17.7402	17.7280	17.6977	17.7100	
	Average	17.7054	17.7152	17.6794	17.6825	

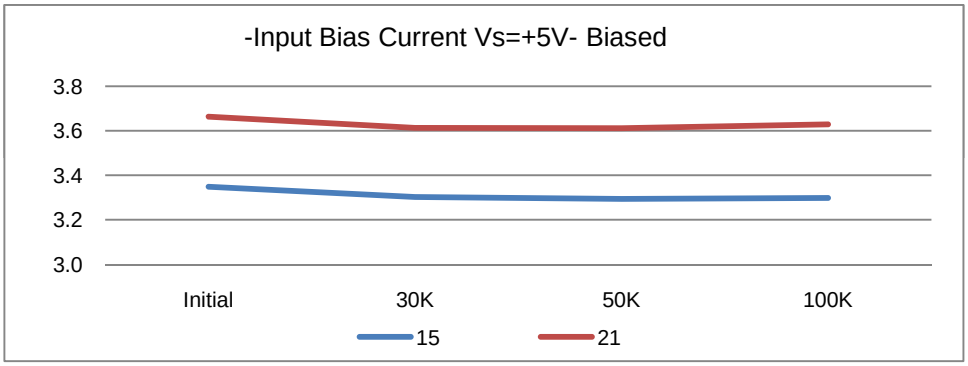


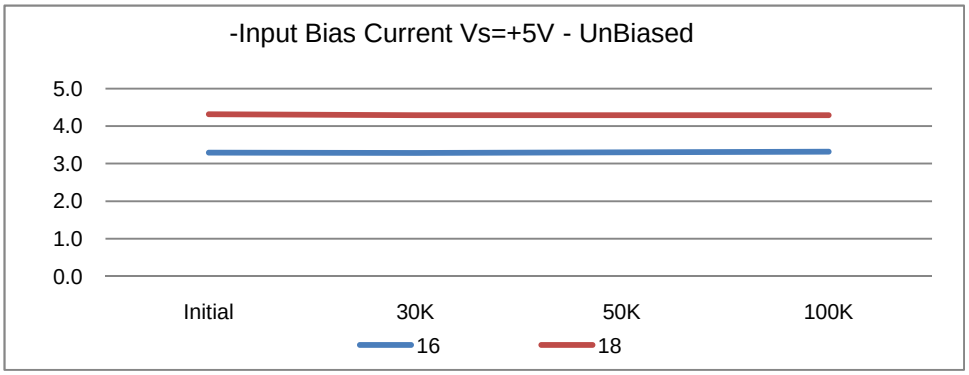




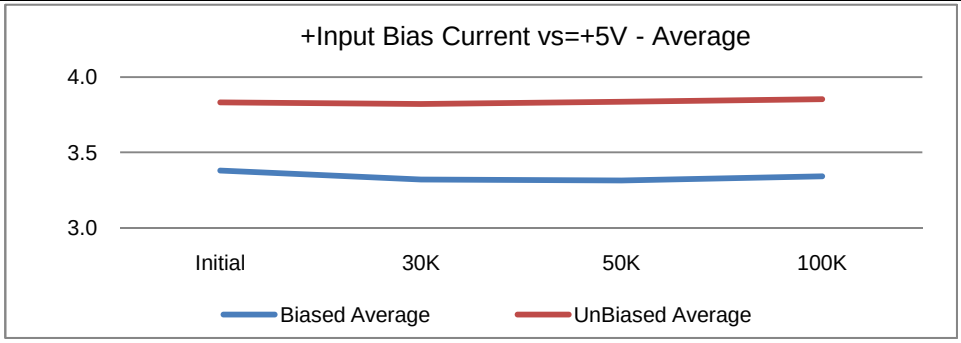
	T# 2	-Ib @ Vs=5v				uA
	SN	Initial	30K	50K	100K	Limit
Control	20	3.27015	3.24932	3.24932	3.22318	<7
Biased	15	3.34822	3.30325	3.2944	3.29869	
	21	3.66315	3.61274	3.61165	3.62829	
	Min	3.3482	3.3033	3.2944	3.2987	
	Max	3.6632	3.6127	3.6117	3.6283	
	Average	3.5057	3.4580	3.4530	3.4635	
UnBiased	16	3.29357	3.28597	3.30529	3.3214	
	18	4.31821	4.2924	4.2882	4.29588	
	Min	3.2936	3.2860	3.3053	3.3214	
	Max	4.3182	4.2924	4.2882	4.2959	
	Average	3.8059	3.7892	3.7967	3.8086	

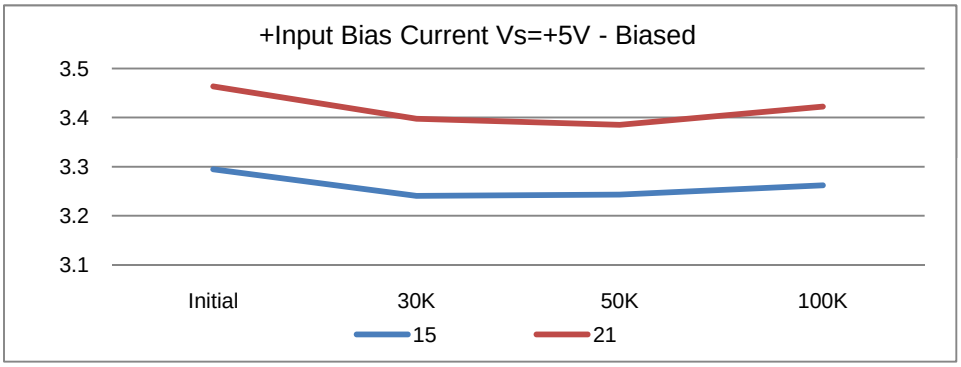


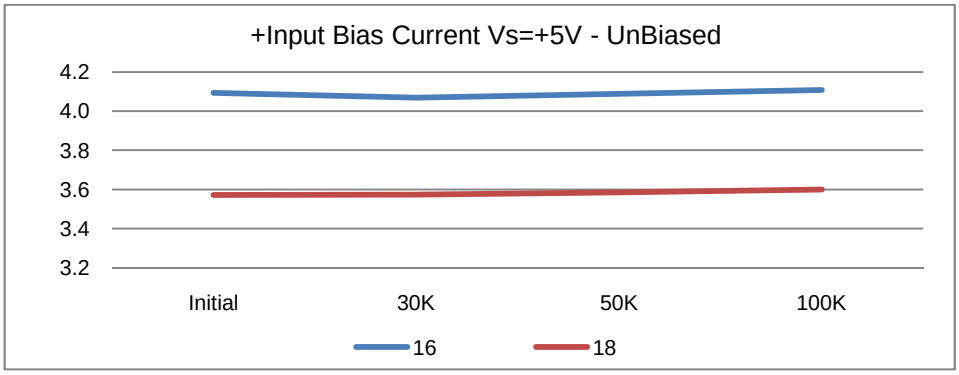




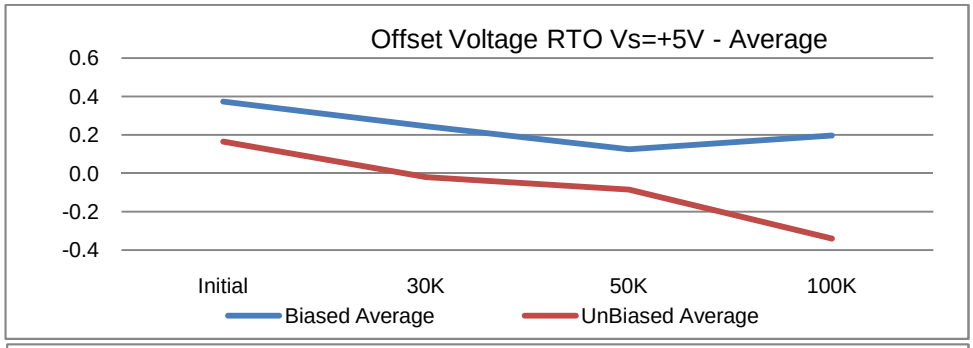
	T# 3	+Ib @ Vs=5v				uA
	SN	Initial	30K	50K	100K	Limit
Control	20	3.22216	3.21015	3.21015	3.18862	<7
Biased	15	3.29463	3.24078	3.24287	3.26224	
	21	3.46376	3.39772	3.38501	3.42229	
	Min	3.2946	3.2408	3.2429	3.2622	
	Max	3.4638	3.3977	3.3850	3.4223	
	Average	3.3792	3.3193	3.3139	3.3423	
UnBiased	16	4.09341	4.06826	4.08884	4.10759	
	18	3.57188	3.57355	3.58496	3.59942	
	Min	3.5719	3.5736	3.5850	3.5994	
	Max	4.0934	4.0683	4.0888	4.1076	
	Average	3.8326	3.8209	3.8369	3.8535	

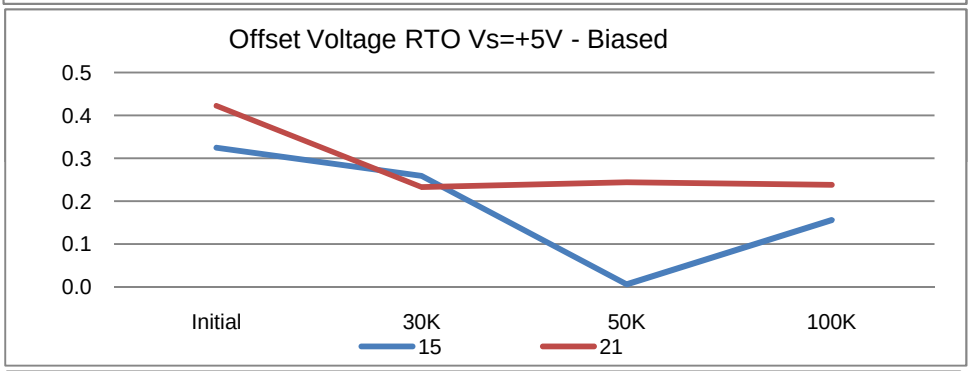


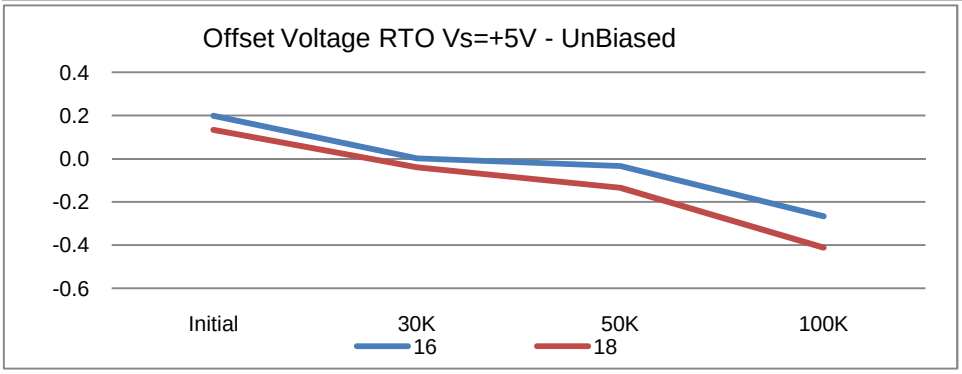




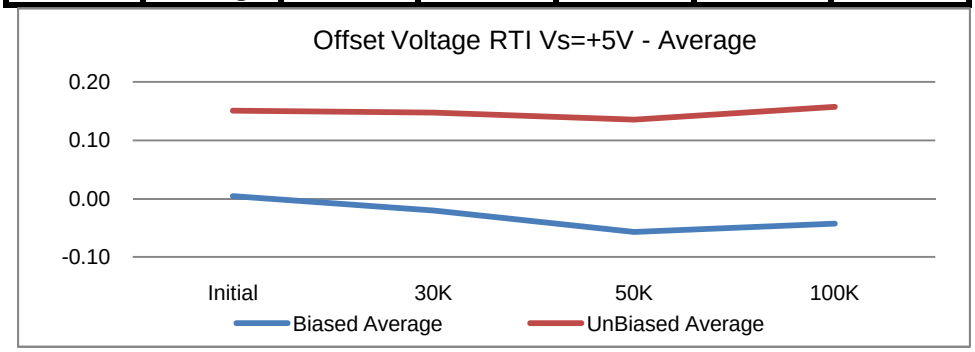
	T# 4	RTO Vos cm @ Vs=5v				mV
	SN	Initial	30K	50K	100K	Limit
Control	20	-0.23679	-0.33081	-0.33081	-0.54085	+/-5
Biased	15	0.32448	0.25911	0.00567	0.15615	
	21	0.42228	0.23281	0.24378	0.23825	
	Min	0.3245	0.2328	0.0057	0.1562	
	Max	0.4223	0.2591	0.2438	0.2383	
	Average	0.3734	0.2460	0.1247	0.1972	
UnBiased	16	0.19857	0.00232	-0.03344	-0.26712	
	18	0.13302	-0.03992	-0.13426	-0.41205	
	Min	0.1330	-0.0399	-0.1343	-0.4121	
	Max	0.1986	0.0023	-0.0334	-0.2671	
	Average	0.1658	-0.0188	-0.0839	-0.3396	

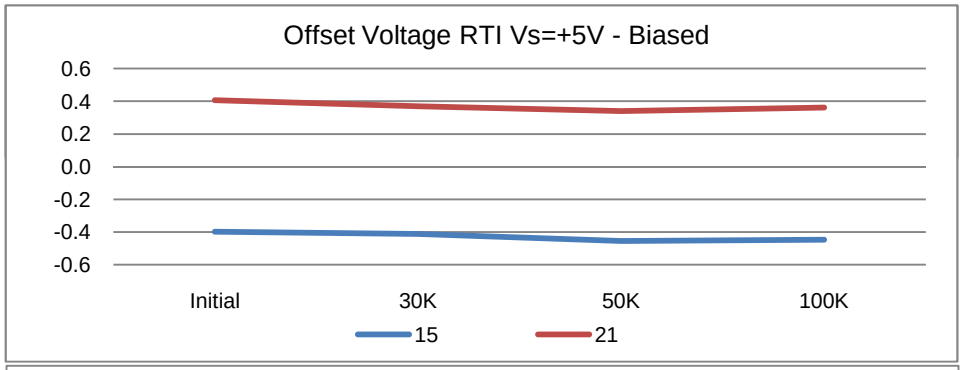


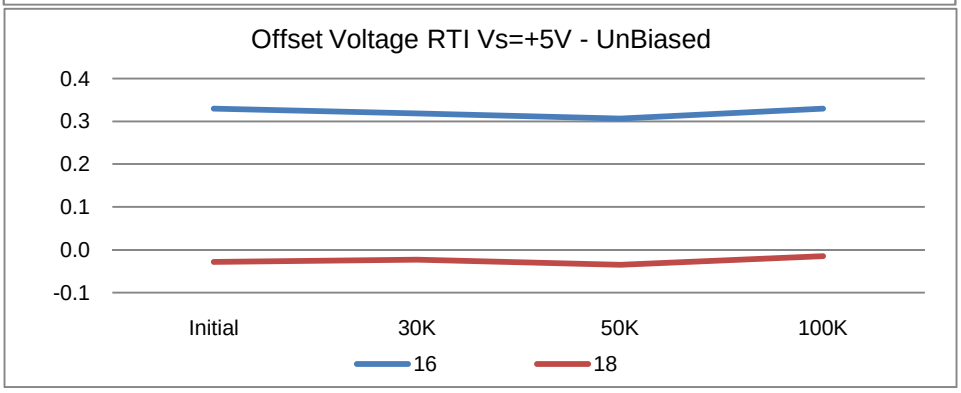




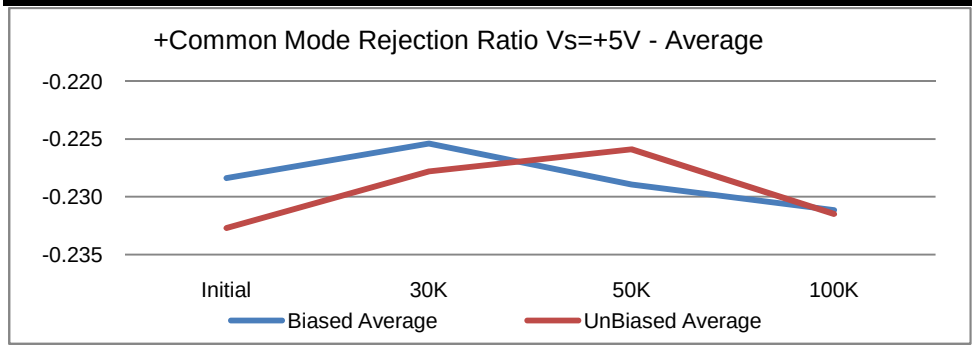
	T# 5	RTI Vos dm @ Vs=5v				mV
	SN	Initial	30K	50K	100K	Limit
Control	20	-0.99406	-1.01093	-1.01093	-1.00413	+/-2.5
Biased	15	-0.39757	-0.41065	-0.45483	-0.44735	
	21	0.4064	0.36919	0.34034	0.36143	
	Min	-0.3976	-0.4107	-0.4548	-0.4474	
	Max	0.4064	0.3692	0.3403	0.3614	
	Average	0.0044	-0.0207	-0.0572	-0.0430	
UnBiased	16	0.32931	0.31799	0.30643	0.32984	
	18	-0.02819	-0.02327	-0.03514	-0.01484	
	Min	-0.0282	-0.0233	-0.0351	-0.0148	
	Max	0.3293	0.3180	0.3064	0.3298	
	Average	0.1506	0.1474	0.1356	0.1575	

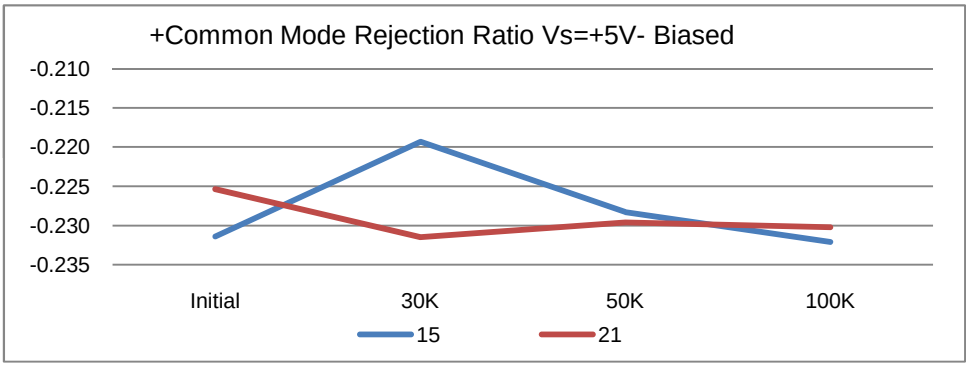


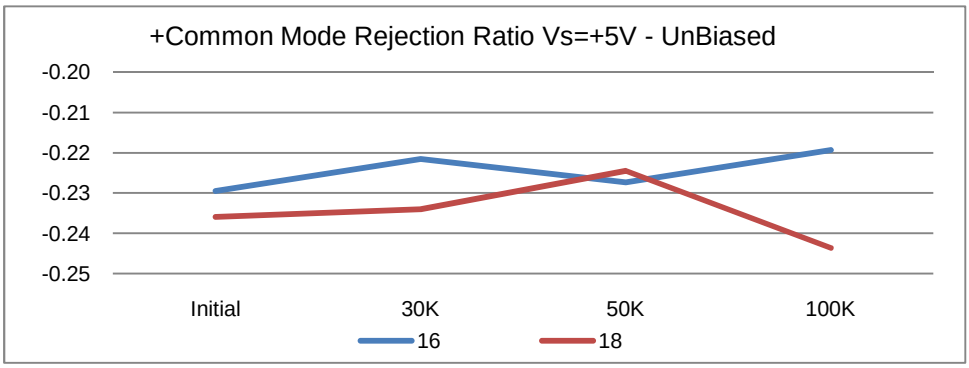




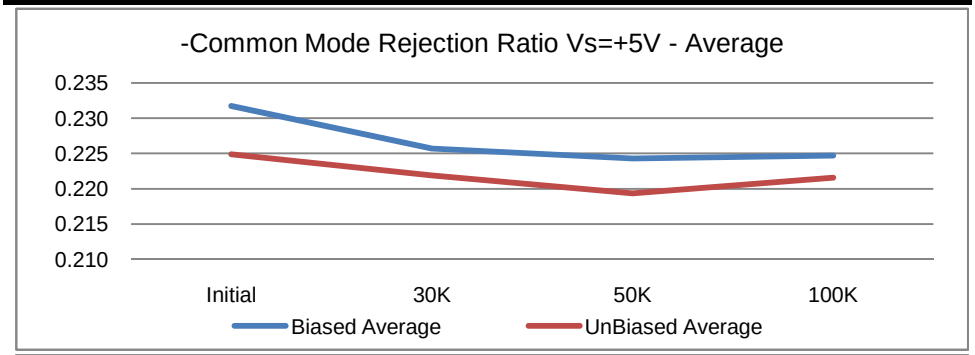
	T# 6	+CMRR dm @ Vs=5v				mV/V
	SN	Initial	30K	50K	100K	Limit
Control	20	-0.22628	-0.2267	-0.2267	-0.22346	<.316
Biased	15	-0.2314	-0.21932	-0.2283	-0.23209	
	21	-0.22535	-0.23149	-0.22959	-0.23021	
	Min	-0.2314	-0.2315	-0.2296	-0.2321	
	Max	-0.2254	-0.2193	-0.2283	-0.2302	
	Average	-0.2284	-0.2254	-0.2289	-0.2312	
UnBiased	16	-0.22951	-0.22157	-0.22735	-0.21932	
	18	-0.2359	-0.23405	-0.22446	-0.24363	
	Min	-0.2359	-0.2341	-0.2274	-0.2436	
	Max	-0.2295	-0.2216	-0.2245	-0.2193	
	Average	-0.2327	-0.2278	-0.2259	-0.2315	

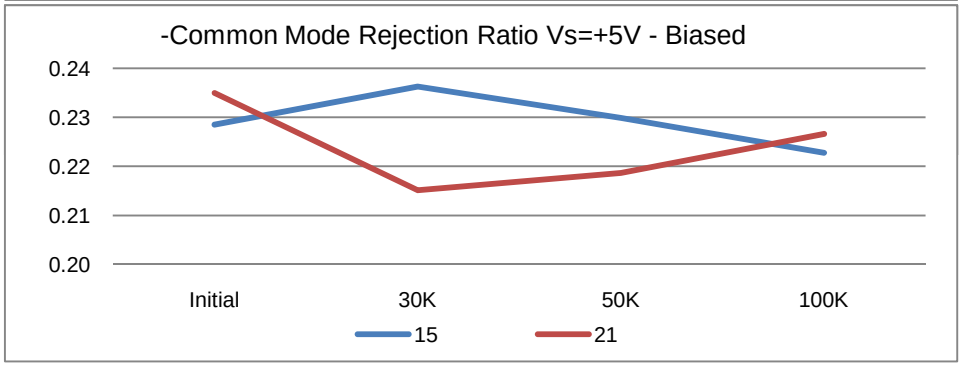


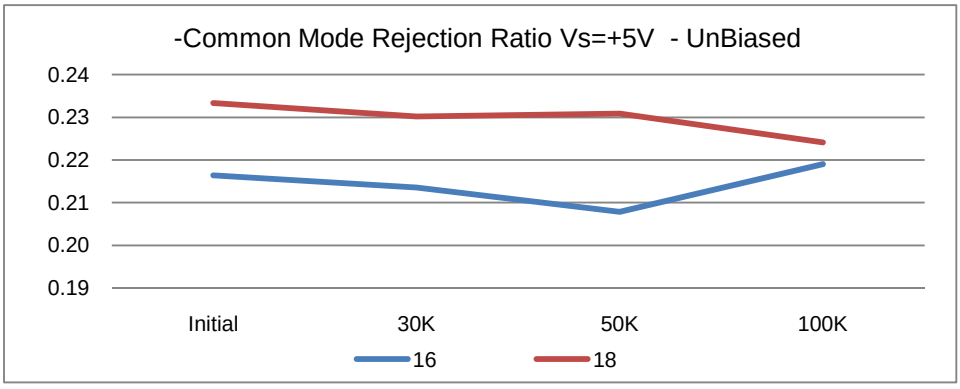




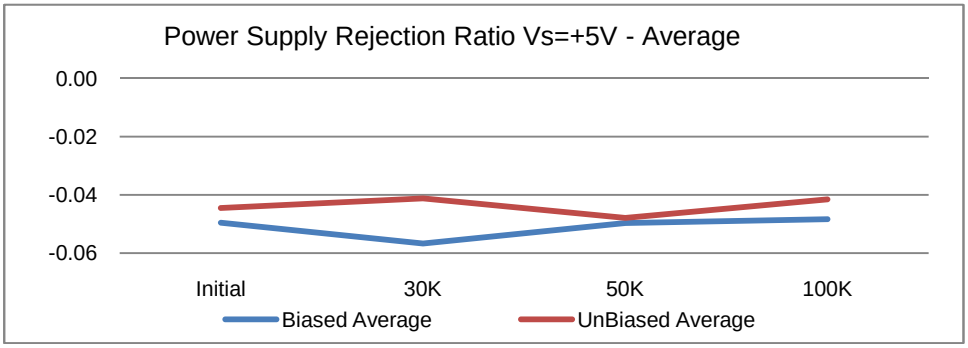
	T# 7	-CMRR dm @ Vs=5v				mV/V
	SN	Initial	30K	50K	100K	Limit
Control	20	0.22371	0.22285	0.22285	0.22153	<.316
Biased	15	0.22851	0.23628	0.22989	0.22279	
	21	0.23494	0.21516	0.21869	0.22664	
	Min	0.2285	0.2152	0.2187	0.2228	
	Max	0.2349	0.2363	0.2299	0.2266	
	Average	0.2317	0.2257	0.2243	0.2247	
UnBiased	16	0.2164	0.21357	0.20782	0.219	
	18	0.23334	0.23021	0.23086	0.2241	
	Min	0.2164	0.2136	0.2078	0.2190	
	Max	0.2333	0.2302	0.2309	0.2241	
	Average	0.2249	0.2219	0.2193	0.2216	

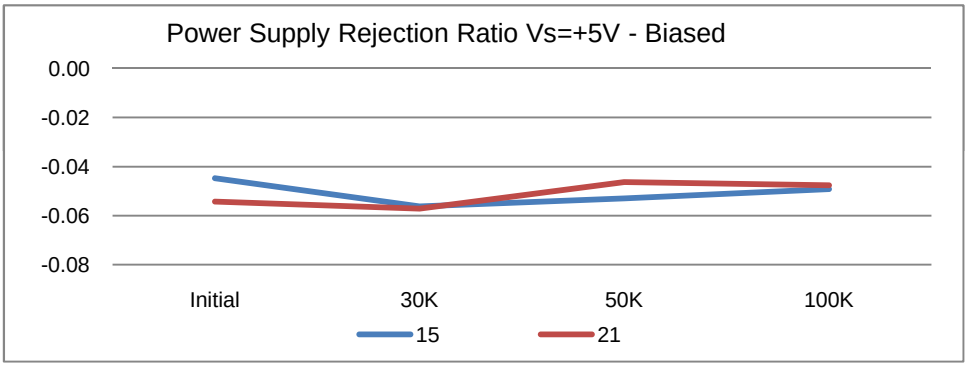


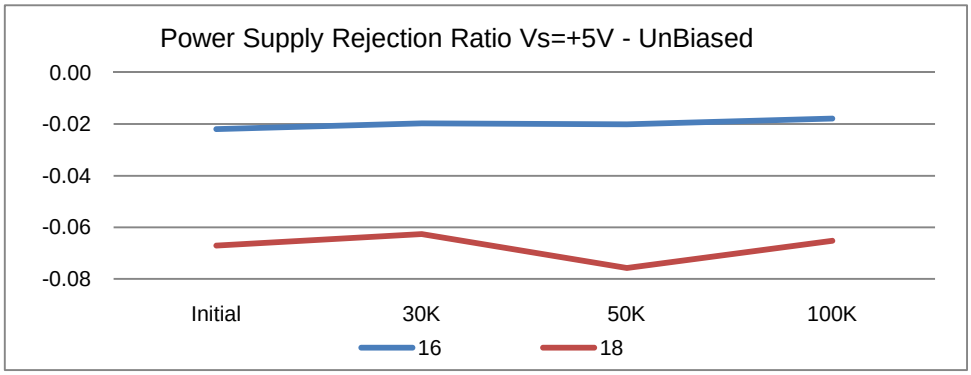




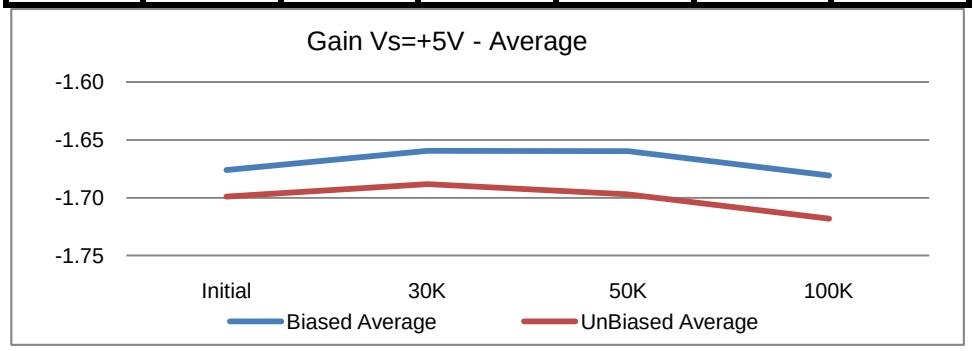
	T# 8	+PSRR dm @ Vs=5v				mV/V
	SN	Initial	30K	50K	100K	Limit
Control	20	-0.09556	-0.10263	-0.10263	-0.08727	<.316
Biased	15	-0.04467	-0.0562	-0.05301	-0.04917	
	21	-0.05429	-0.05717	-0.04629	-0.04759	
	Min	-0.0543	-0.0572	-0.0530	-0.0492	
	Max	-0.0447	-0.0562	-0.0463	-0.0476	
	Average	-0.0495	-0.0567	-0.0497	-0.0484	
UnBiased	16	-0.02196	-0.01971	-0.02004	-0.01782	
	18	-0.06708	-0.06261	-0.07574	-0.06519	
	Min	-0.0671	-0.0626	-0.0757	-0.0652	
	Max	-0.0220	-0.0197	-0.0200	-0.0178	
	Average	-0.0445	-0.0412	-0.0479	-0.0415	

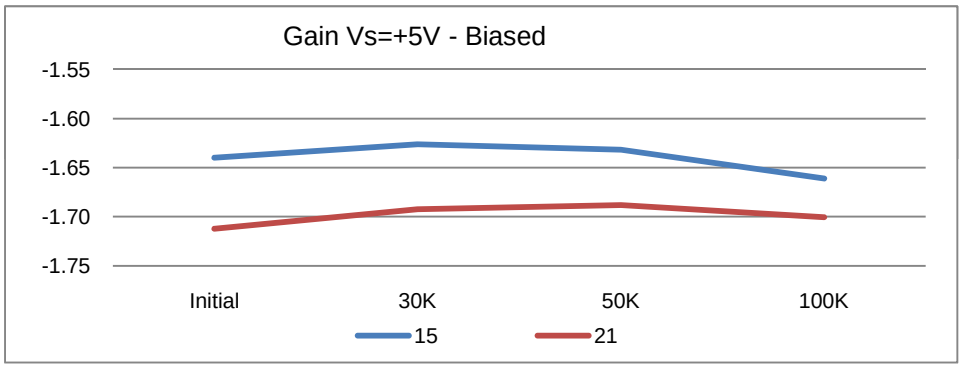


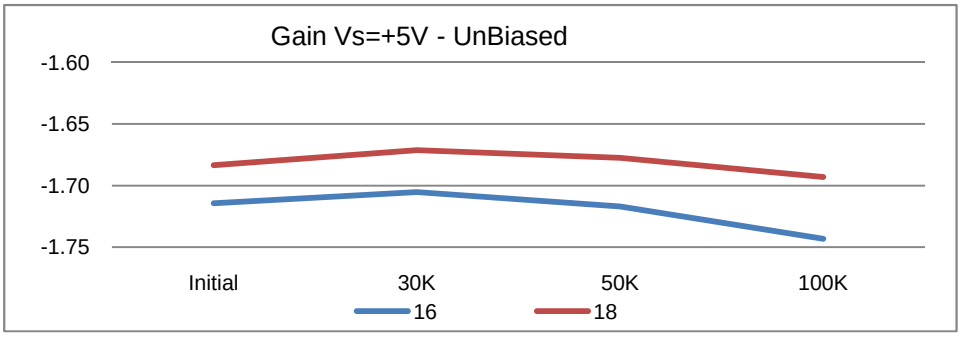




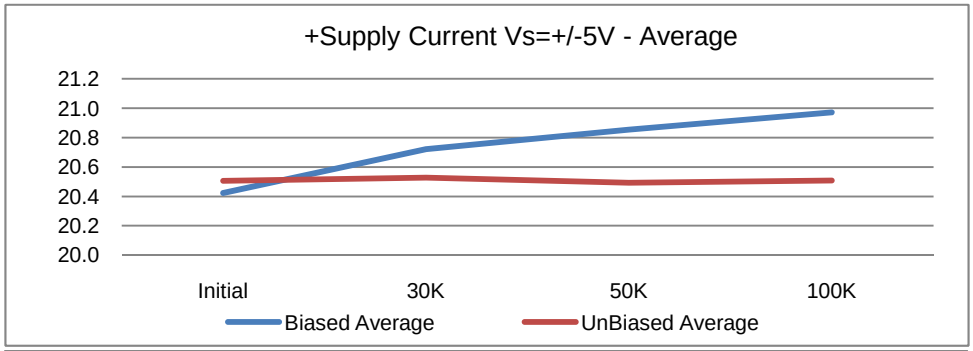
	T# 9	Gain Vs=+5V				mV/V
	SN	Initial	30K	50K	100K	Limit
Control	20	-1.63978	-1.66145	-1.66145	-1.67714	+/-3.2
Biased	15	-1.63978	-1.62627	-1.63158	-1.66113	
	21	-1.71232	-1.69243	-1.68813	-1.70061	
	Min	-1.7123	-1.6924	-1.6881	-1.7006	
	Max	-1.6398	-1.6263	-1.6316	-1.6611	
	Average	-1.6761	-1.6594	-1.6599	-1.6809	
UnBiased	16	-1.71446	-1.70523	-1.71694	-1.74328	
	18	-1.68352	-1.67108	-1.67746	-1.69314	
	Min	-1.7145	-1.7052	-1.7169	-1.7433	
	Max	-1.6835	-1.6711	-1.6775	-1.6931	
	Average	-1.6990	-1.6882	-1.6972	-1.7182	

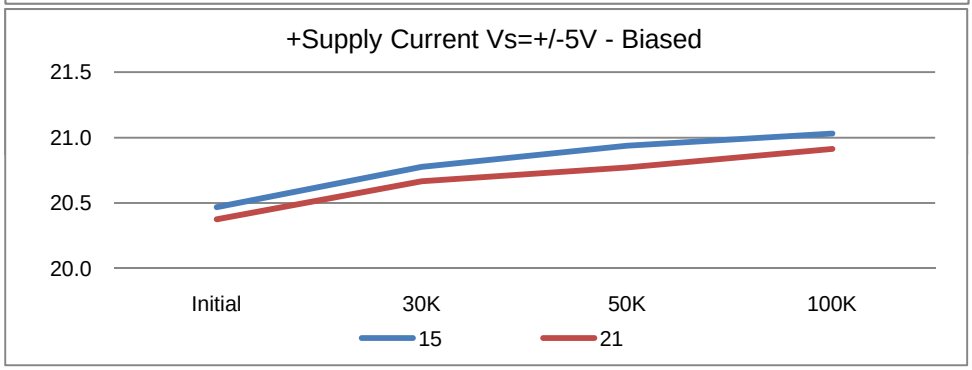


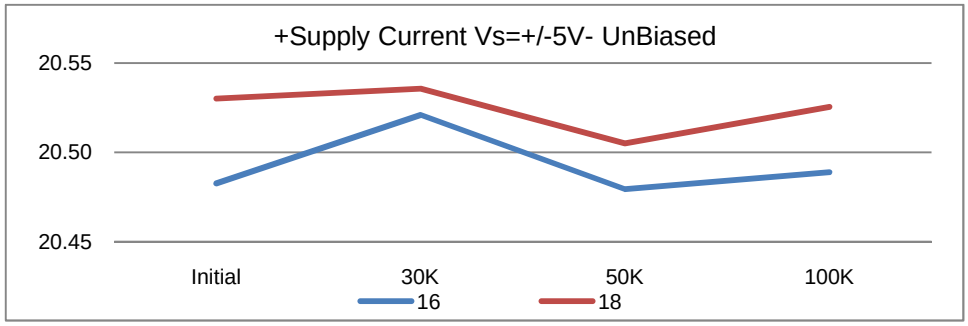




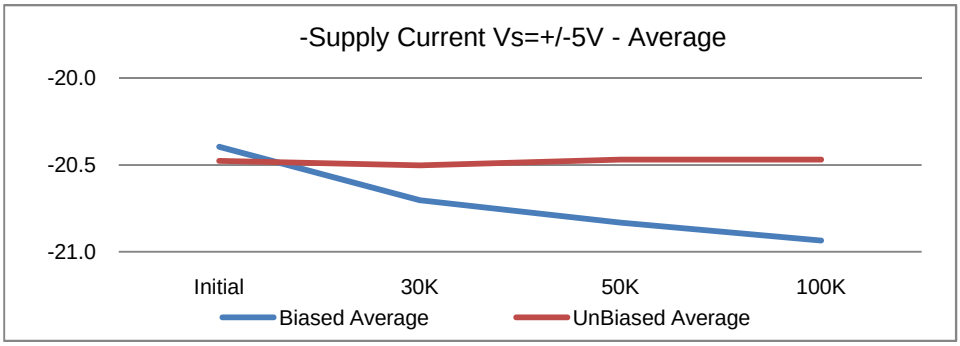
	T# 10	+Is @ Vs=+/-5v				mA
	SN	Initial	30K	50K	100K	Limit
Control	20	20.45321	20.51228	20.51228	20.72288	<23
Biased	15	20.46783	20.77719	20.93685	21.03002	
	21	20.37642	20.66738	20.77215	20.91301	
	Min	20.3764	20.6674	20.7722	20.9130	
	Max	20.4678	20.7772	20.9369	21.0300	
	Average	20.4221	20.7223	20.8545	20.9715	
UnBiased	16	20.48246	20.52096	20.47934	20.48887	
	18	20.52999	20.5356	20.50496	20.52543	
	Min	20.4825	20.5210	20.4793	20.4889	
	Max	20.5300	20.5356	20.5050	20.5254	
	Average	20.5062	20.5283	20.4922	20.5072	

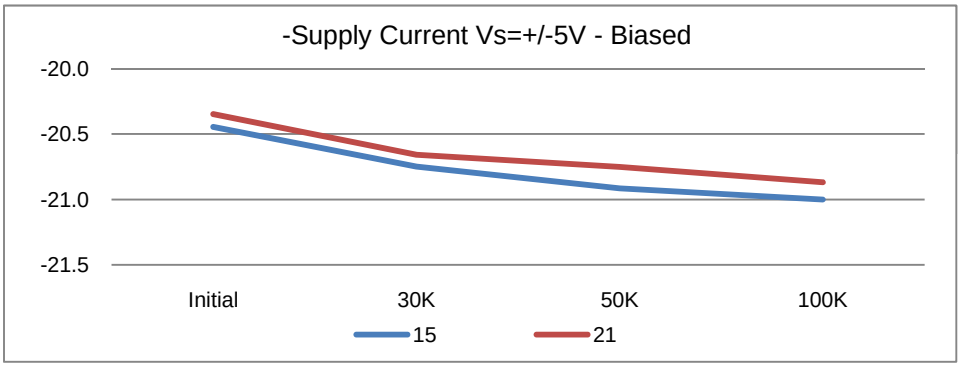


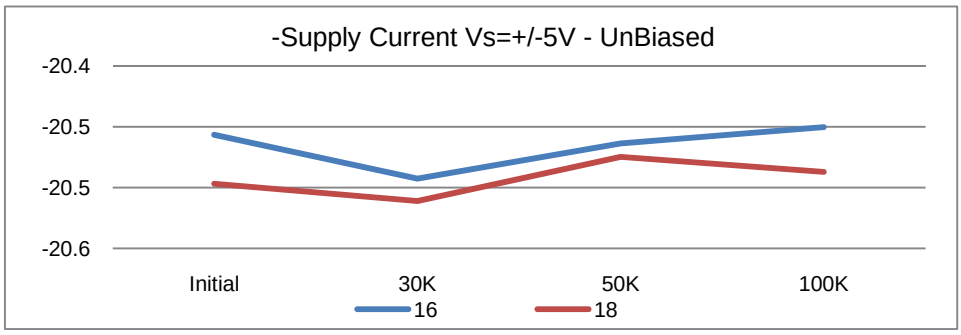




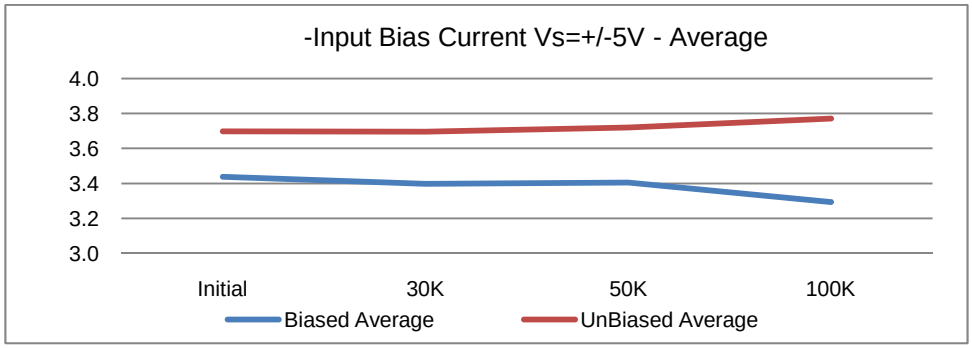
	T# 11	-Is @ Vs=+/-5v				mA
	SN	Initial	30K	50K	100K	Limit
Control	**20**	**-20.4346**	**-20.5078**	**-20.5078**	**-20.7072**	**>-23**
Biased	**15**	-20.4456	-20.7493	-20.9149	-21.0009	
	21	-20.3465	-20.6577	-20.7498	-20.8687	
	Min	-20.4456	-20.7493	-20.9149	-21.0009	
	Max	-20.3465	-20.6577	-20.7498	-20.8687	
	Average	-20.3960	-20.7035	-20.8323	-20.9348	
UnBiased	**16**	-20.4566	-20.4926	-20.4638	-20.4503	
	18	-20.497	-20.511	-20.4748	-20.487	
	Min	-20.4970	-20.5110	-20.4748	-20.4870	
	Max	-20.4566	-20.4926	-20.4638	-20.4503	
	Average	-20.4768	-20.5018	-20.4693	-20.4687	

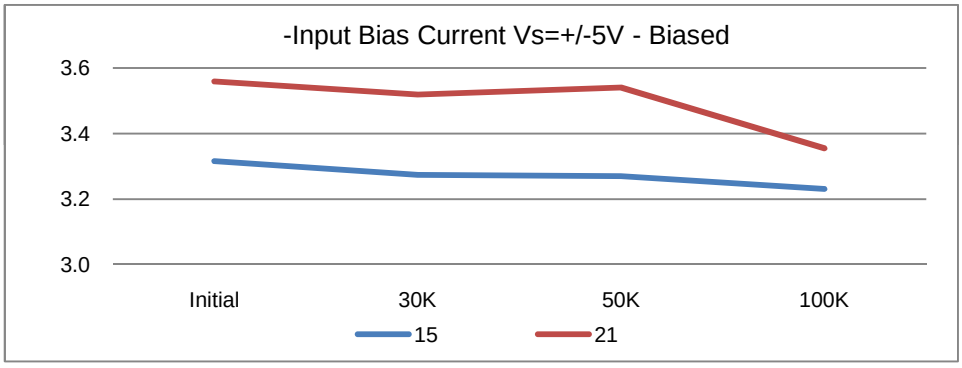


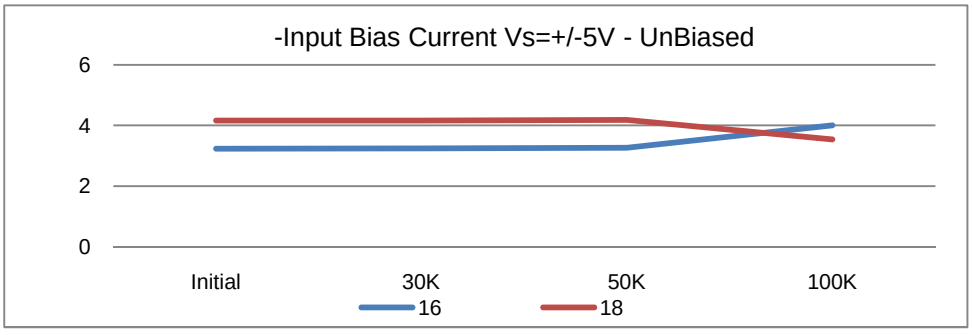




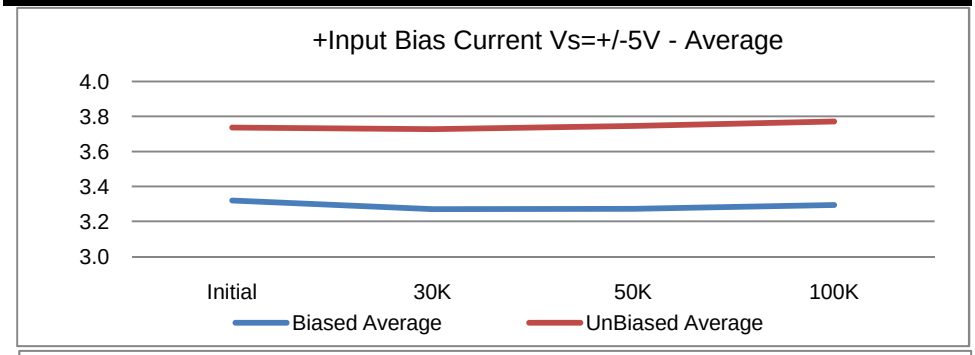
	T# 12	-Ib @ Vs=+/-5v				uA
	SN	Initial	30K	50K	100K	Limit
Control	20	3.26349	3.25975	3.25975	3.19355	<7
Biased	15	3.31616	3.27406	3.27027	3.23094	
	21	3.55883	3.51888	3.54026	3.35545	
	Min	3.3162	3.2741	3.2703	3.2309	
	Max	3.5588	3.5189	3.5403	3.3555	
	Average	3.4375	3.3965	3.4053	3.2932	
UnBiased	16	3.23226	3.23629	3.26194	4.00343	
	18	4.16341	4.15507	4.17846	3.53892	
	Min	3.2323	3.2363	3.2619	3.5389	
	Max	4.1634	4.1551	4.1785	4.0034	
	Average	3.6978	3.6957	3.7202	3.7712	

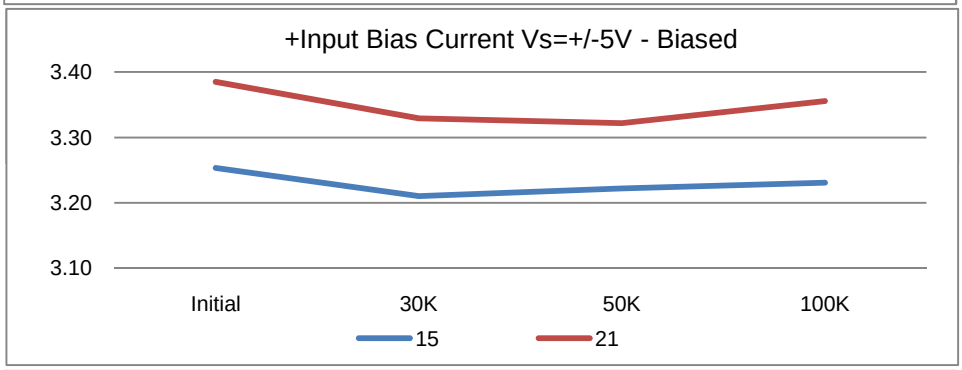


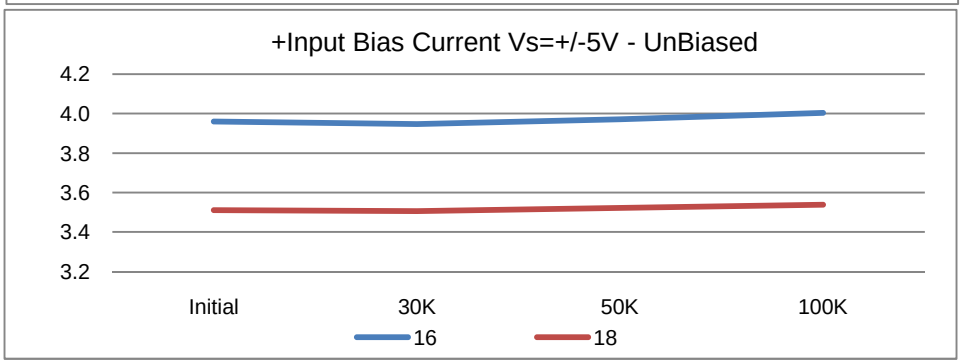




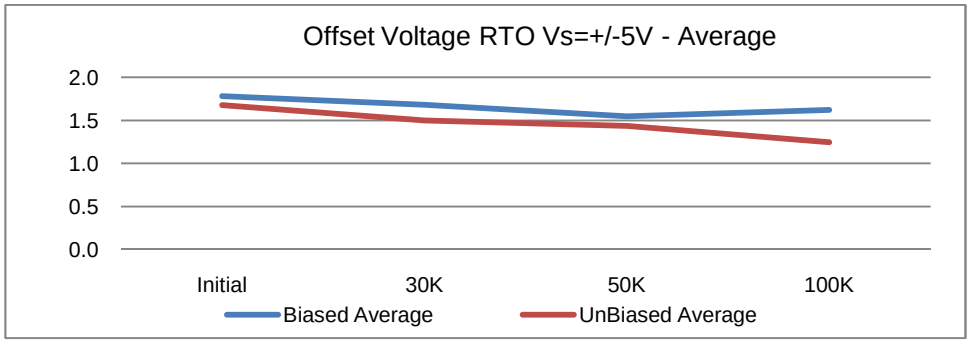
	T# 13	+Ib @ Vs=+/-5v				uA
	SN	Initial	30K	50K	100K	Limit
Control	20	3.20923	3.20779	3.20779	3.19355	<7
Biased	15	3.25328	3.21037	3.22206	3.23094	
	21	3.38489	3.32908	3.32207	3.35545	
	Min	3.2533	3.2104	3.2221	3.2309	
	Max	3.3849	3.3291	3.3221	3.3555	
	Average	3.3191	3.2697	3.2721	3.2932	
UnBiased	16	3.96051	3.94762	3.97116	4.00343	
	18	3.51151	3.50677	3.52228	3.53892	
	Min	3.5115	3.5068	3.5223	3.5389	
	Max	3.9605	3.9476	3.9712	4.0034	
	Average	3.7360	3.7272	3.7467	3.7712	

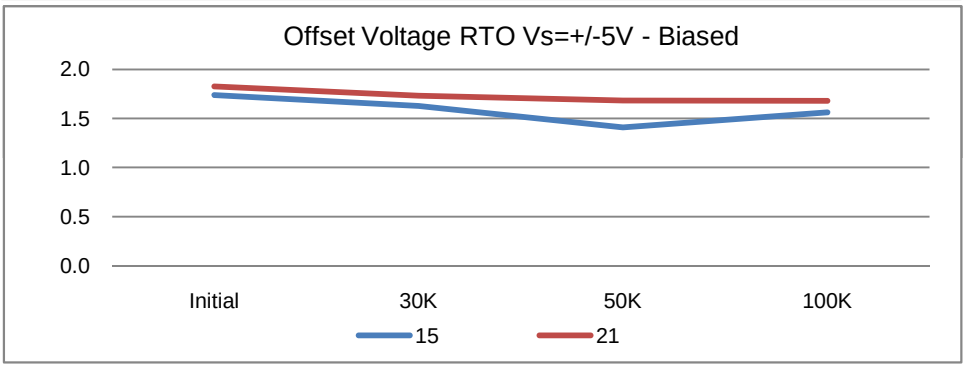


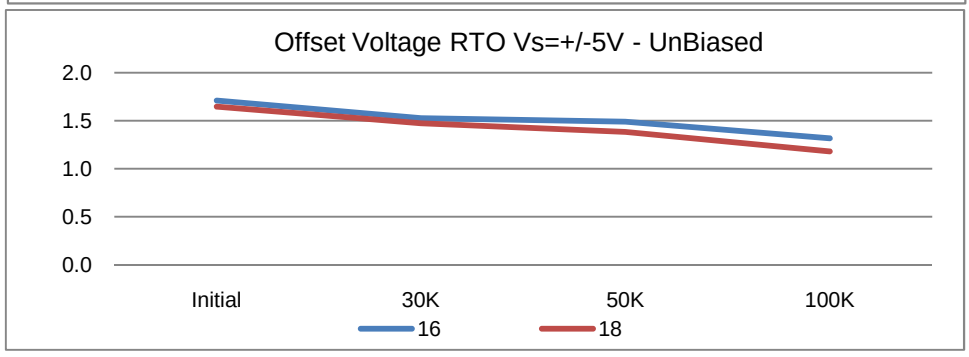




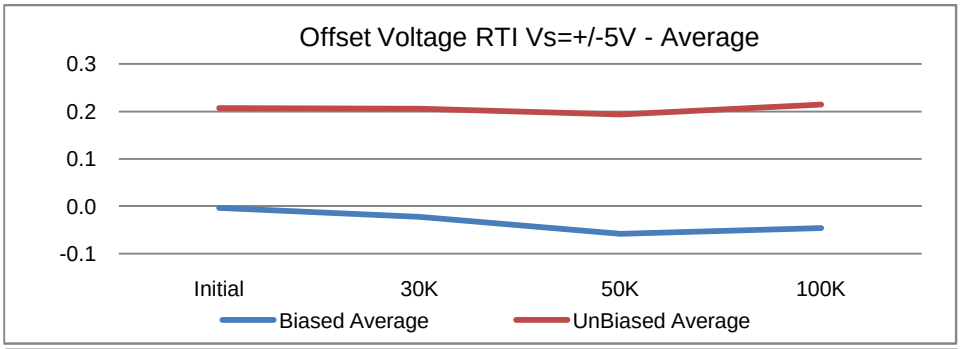
	T# 14	RTO Vos cm @ Vs=+/-5v				mV
	SN	Initial	30K	50K	100K	Limit
Control	20	1.22781	1.14465	1.14465	0.99706	+/-3.5
Biased	15	1.73883	1.62799	1.40845	1.56122	
	21	1.82446	1.73134	1.68307	1.6795	
	Min	1.7388	1.6280	1.4085	1.5612	
	Max	1.8245	1.7313	1.6831	1.6795	
	Average	1.7816	1.6797	1.5458	1.6204	
UnBiased	16	1.70988	1.52453	1.48875	1.3159	
	18	1.64689	1.47205	1.38345	1.17961	
	Min	1.6469	1.4721	1.3835	1.1796	
	Max	1.7099	1.5245	1.4888	1.3159	
	Average	1.6784	1.4983	1.4361	1.2478	

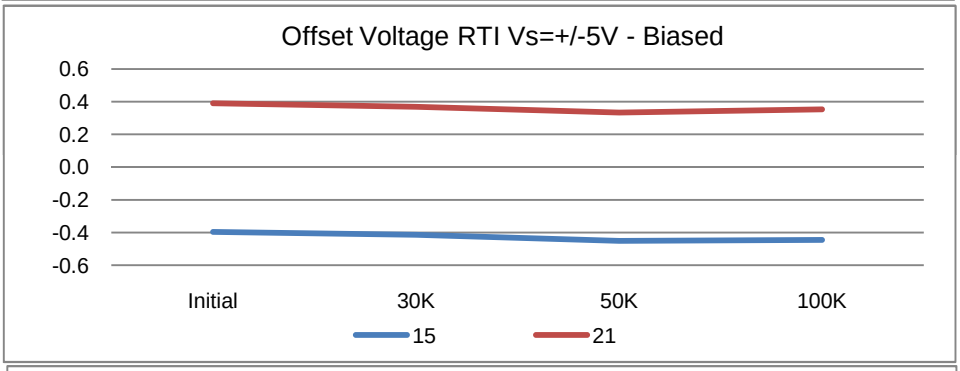


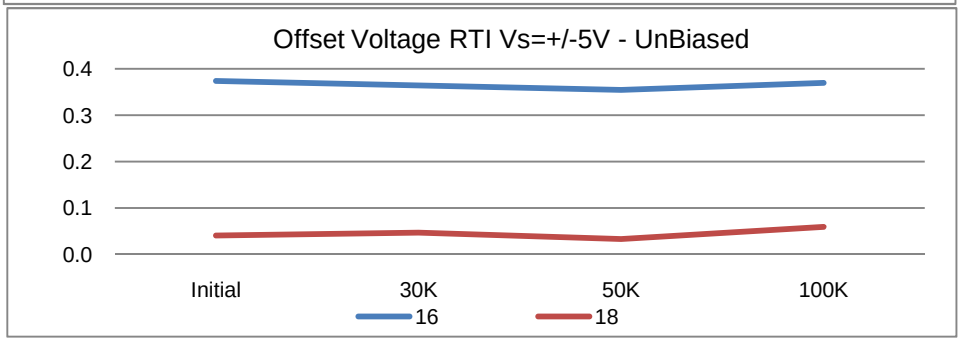




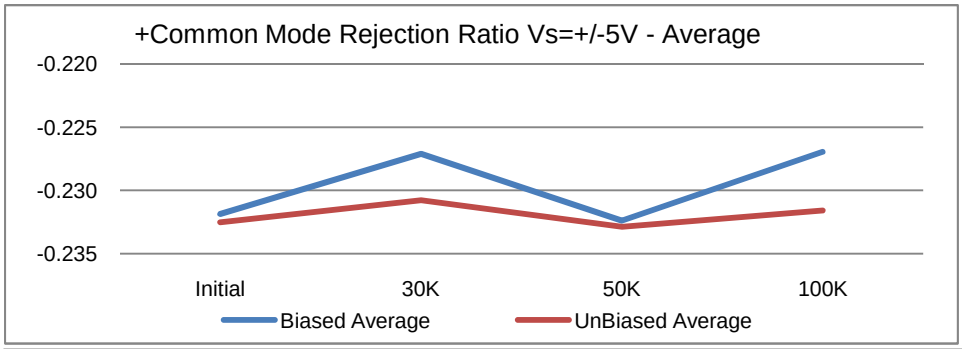
	T# 15	RTI Vos dm @ Vs=+/-5v				mV
	SN	Initial	30K	50K	100K	Limit
Control	20	-1.03209	-1.04913	-1.04913	-1.03994	+/-2.5
Biased	15	-0.39687	-0.41394	-0.45045	-0.44633	
	21	0.38982	0.36877	0.33384	0.3538	
	Min	-0.3969	-0.4139	-0.4505	-0.4463	
	Max	0.3898	0.3688	0.3338	0.3538	
	Average	-0.0035	-0.0226	-0.0583	-0.0463	
UnBiased	16	0.37384	0.36366	0.35402	0.36923	
	18	0.04067	0.04738	0.03358	0.05944	
	Min	0.0407	0.0474	0.0336	0.0594	
	Max	0.3738	0.3637	0.3540	0.3692	
	Average	0.2073	0.2055	0.1938	0.2143	

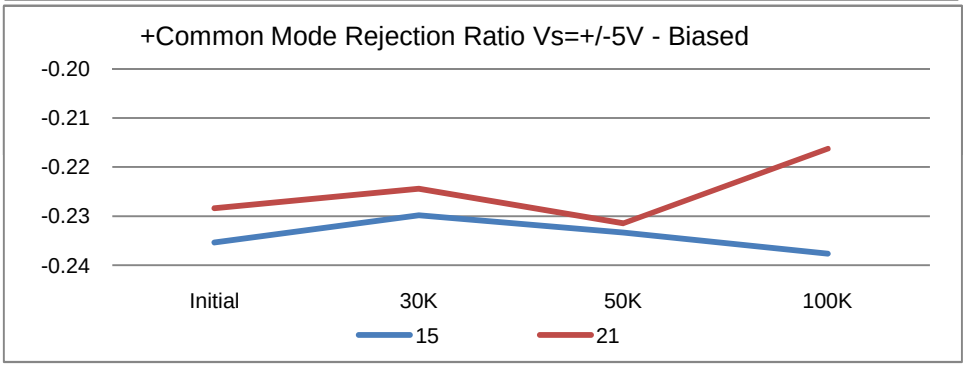


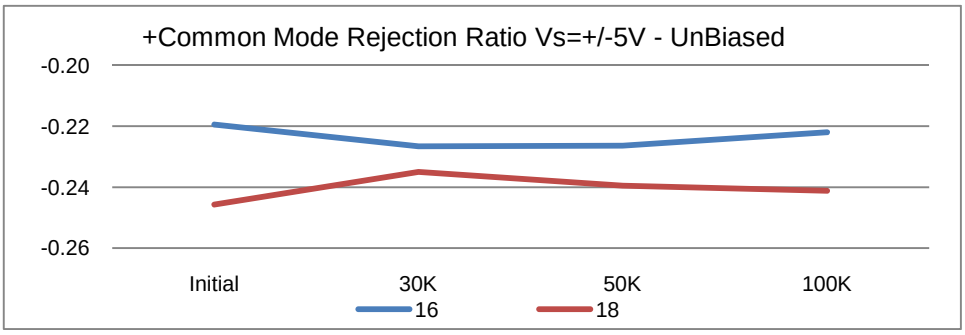




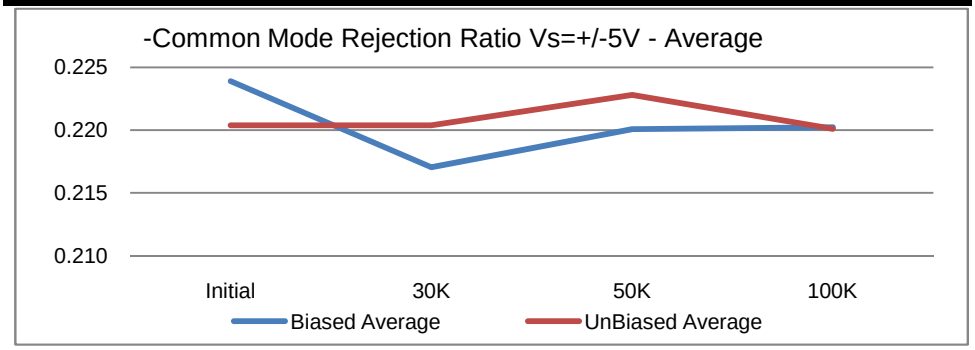
	T# 16	+CMRR dm @ Vs=+/-5v				mV/V
	SN	Initial	30K	50K	100K	Limit
Control	20	-0.23409	-0.22214	-0.22214	-0.22198	>-.316
Biased	15	-0.23538	-0.22982	-0.23335	-0.23765	
	21	-0.22836	-0.22439	-0.23144	-0.21623	
	Min	-0.2354	-0.2298	-0.2334	-0.2377	
	Max	-0.2284	-0.2244	-0.2314	-0.2162	
	Average	-0.2319	-0.2271	-0.2324	-0.2269	
UnBiased	16	-0.2194	-0.22662	-0.22631	-0.222	
	18	-0.24563	-0.23494	-0.23944	-0.24119	
	Min	-0.2456	-0.2349	-0.2394	-0.2412	
	Max	-0.2194	-0.2266	-0.2263	-0.2220	
	Average	-0.2325	-0.2308	-0.2329	-0.2316	

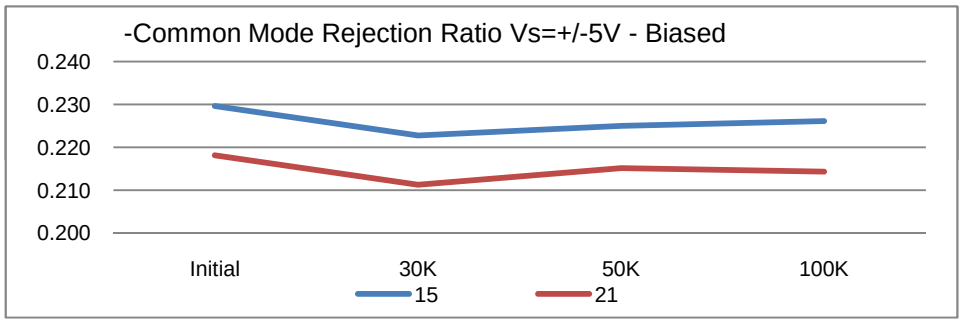


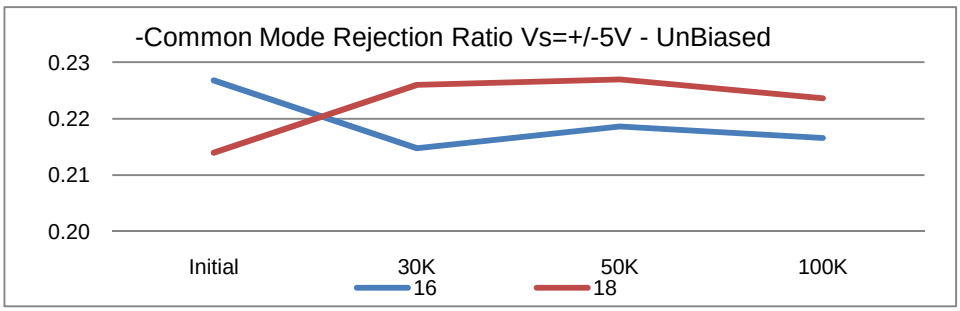




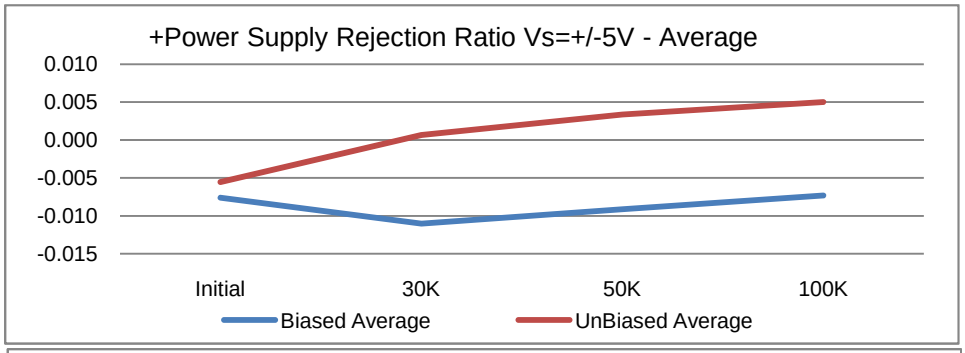
	T# 17	-CMRR dm @ Vs=+/-5v				mV/V
	SN	Initial	30K	50K	100K	Limit
Control	20	0.22386	0.21959	0.21959	0.22007	<.316
Biased	15	0.22963	0.22278	0.22503	0.22614	
	21	0.21814	0.21126	0.21511	0.21431	
	Min	0.2181	0.2113	0.2151	0.2143	
	Max	0.2296	0.2228	0.2250	0.2261	
	Average	0.2239	0.2170	0.2201	0.2202	
UnBiased	16	0.22677	0.21478	0.21863	0.21657	
	18	0.21396	0.22598	0.22695	0.22359	
	Min	0.2140	0.2148	0.2186	0.2166	
	Max	0.2268	0.2260	0.2270	0.2236	
	Average	0.2204	0.2204	0.2228	0.2201	

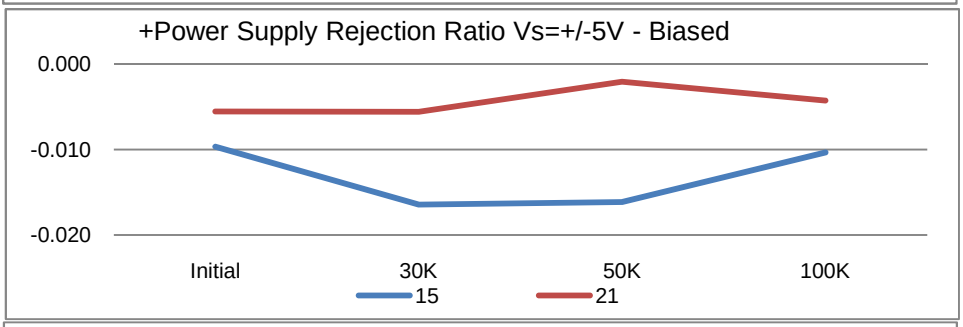


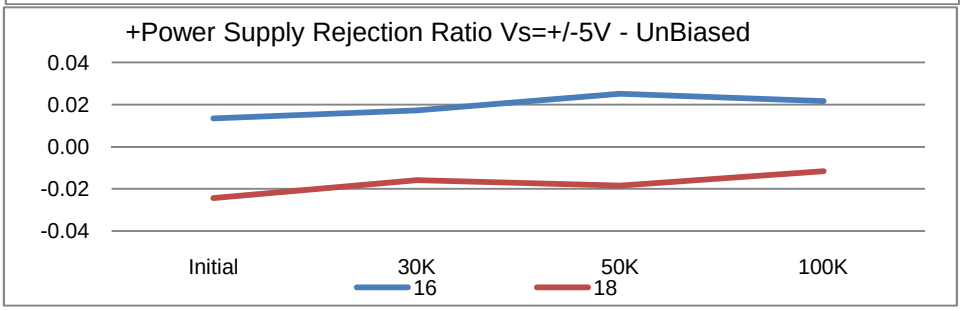




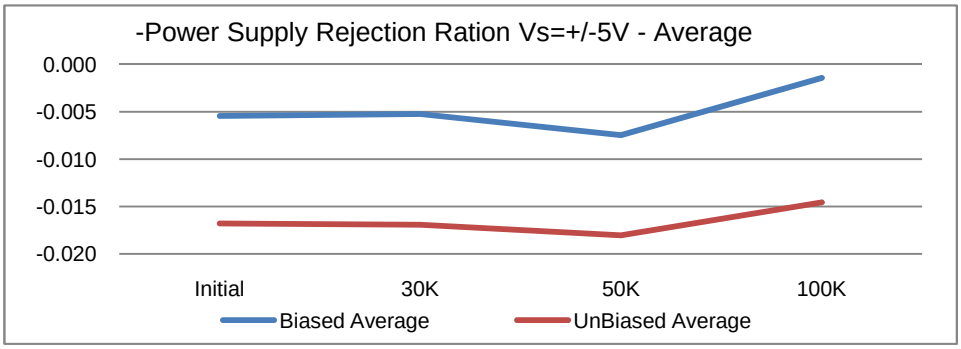
	T# 18	+PSRR dm @ Vs=+/-5v				mV/V
	SN	Initial	30K	50K	100K	Limit
Control	20	-0.01769	-0.02128	-0.02128	-0.02123	>-0.316
Biased	15	-0.00969	-0.01647	-0.01616	-0.01035	
	21	-0.00555	-0.0056	-0.00208	-0.00429	
	Min	-0.0097	-0.0165	-0.0162	-0.0104	
	Max	-0.0056	-0.0056	-0.0021	-0.0043	
	Average	-0.0076	-0.0110	-0.0091	-0.0073	
UnBiased	16	0.01334	0.01713	0.02513	0.02164	
	18	-0.02443	-0.01584	-0.01841	-0.01164	
	Min	-0.0244	-0.0158	-0.0184	-0.0116	
	Max	0.0133	0.0171	0.0251	0.0216	
	Average	-0.0055	0.0006	0.0034	0.0050	

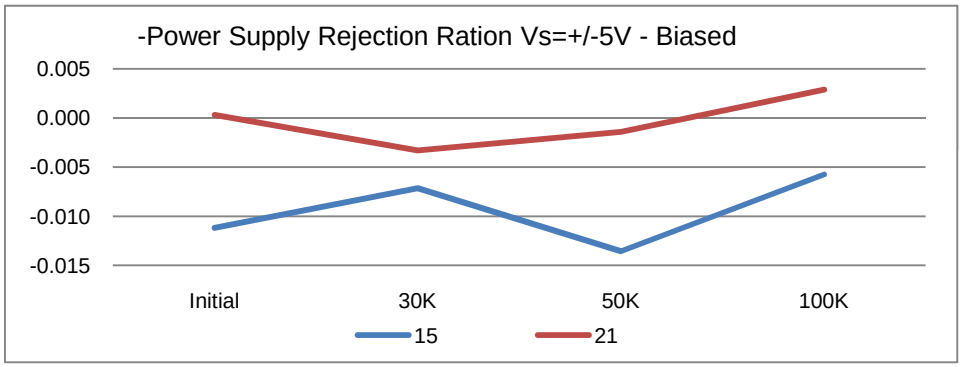


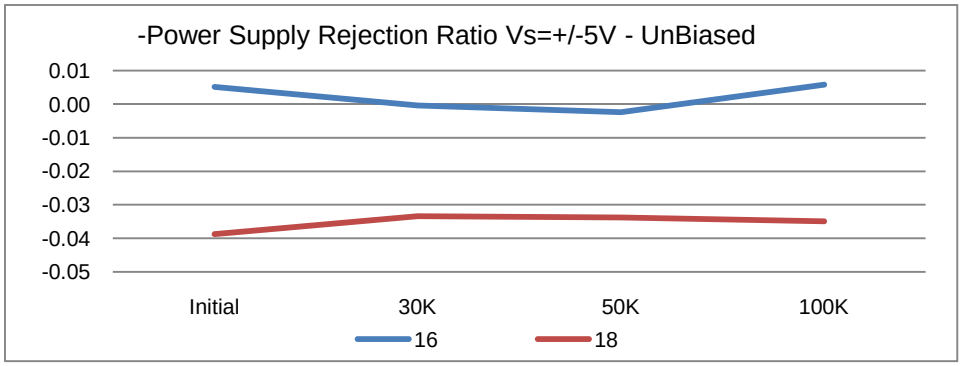




	T# 19	-PSRR dm @ Vs=+/-5v				mV/V
	SN	Initial	30K	50K	100K	Limit
Control	20	-0.01022	-0.0126	-0.0126	-0.00864	>-.316
Biased	15	-0.01118	-0.00715	-0.01356	-0.00575	
	21	0.000327	-0.00331	-0.0014	0.00288	
	Min	-0.0112	-0.0072	-0.0136	-0.0058	
	Max	0.0003	-0.0033	-0.0014	0.0029	
	Average	-0.0054	-0.0052	-0.0075	-0.0014	
UnBiased	16	0.00513	-0.00043	-0.00236	0.00576	
	18	-0.03871	-0.03341	-0.03373	-0.03489	
	Min	-0.0387	-0.0334	-0.0337	-0.0349	
	Max	0.0051	-0.0004	-0.0024	0.0058	
	Average	-0.0168	-0.0169	-0.0180	-0.0146	







	T# 20	Gain				mV/V
	SN	Initial	30K	50K	100K	Limit
Control	20	-2.70559	-2.73281	-2.73281	-2.77816	+/-4.5
Biased	15	-2.72692	-2.71898	-2.72214	-2.73976	
	21	-2.85068	-2.84383	-2.84379	-2.84004	
	Min	-2.8507	-2.8438	-2.8438	-2.8400	
	Max	-2.7269	-2.7190	-2.7221	-2.7398	
	Average	-2.7888	-2.7814	-2.7830	-2.7899	
UnBiased	16	-2.82401	-2.79688	-2.81711	-2.84858	
	18	-2.77707	-2.767	-2.77229	-2.80057	
	Min	-2.8240	-2.7969	-2.8171	-2.8486	
	Max	-2.7771	-2.7670	-2.7723	-2.8006	
	Average	-2.8005	-2.7819	-2.7947	-2.8246