

LOW DOSE RADIATION TEST REPORT REF43S

June 2016
Generic



Radiation Test Report	
Product:	REF43S
Gamma:	0, 10k, 30k, 50k, 75k, 100k
Gamma Source:	Co60/TM1019 Condition D
Dose Rate:	8.3 mRad/s
Facilities:	VPT RAD
Tested:	12/22/15 - 5/25/16

The RADTEST® 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.

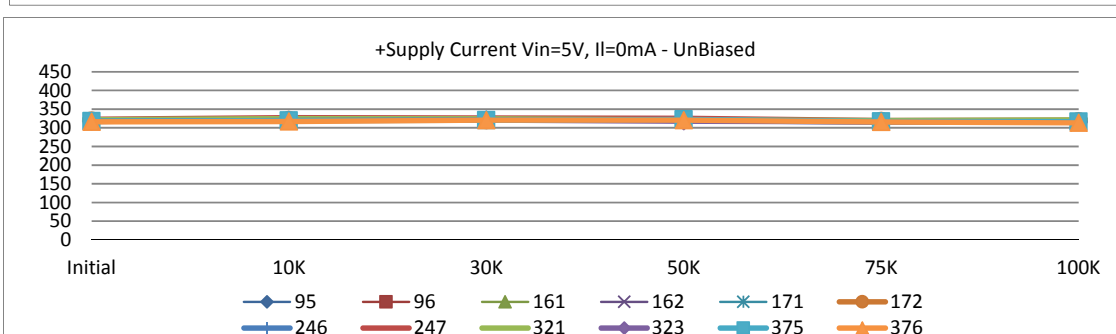
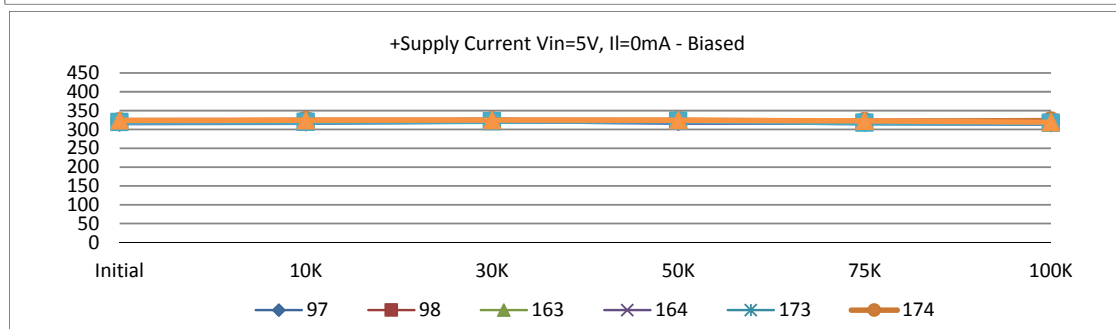
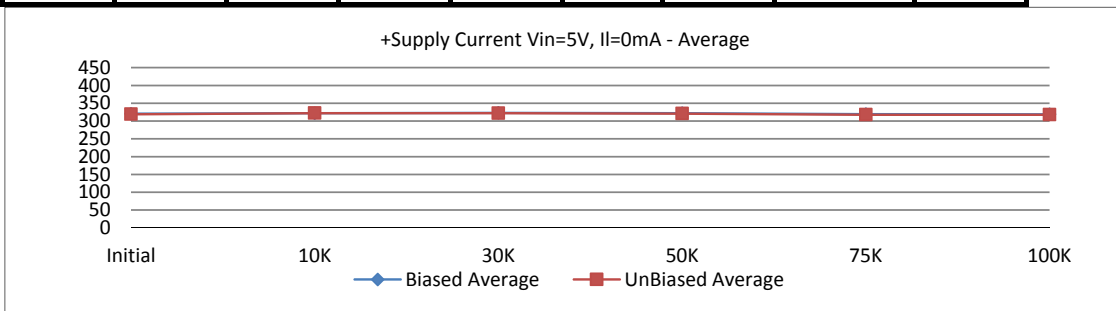
It is the responsibility of the Procuring Activity to screen products from Analog Devices, Inc. for compliance to Nuclear Hardness Critical Items (HCI) specifications.

Warning:

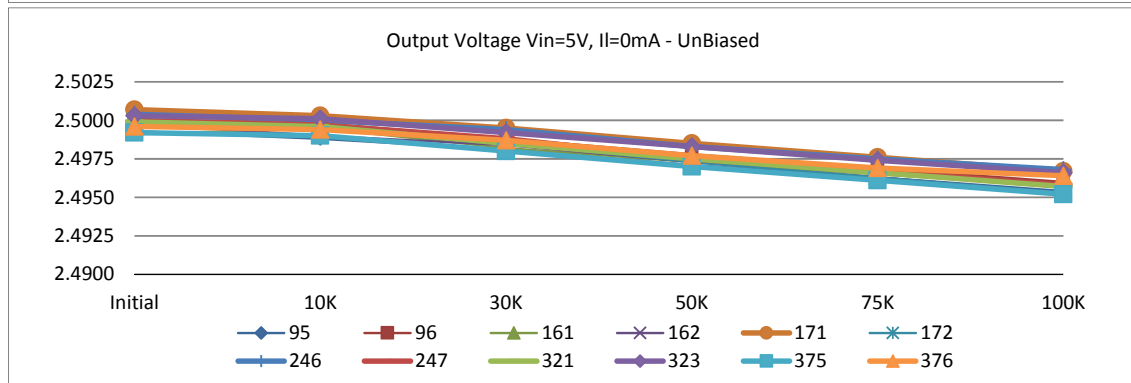
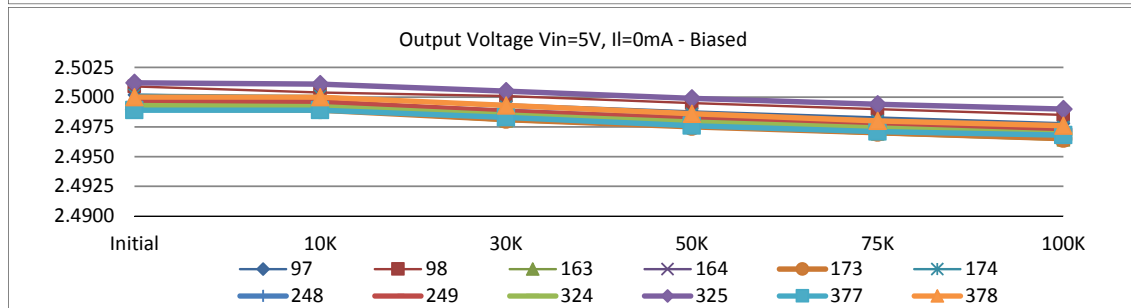
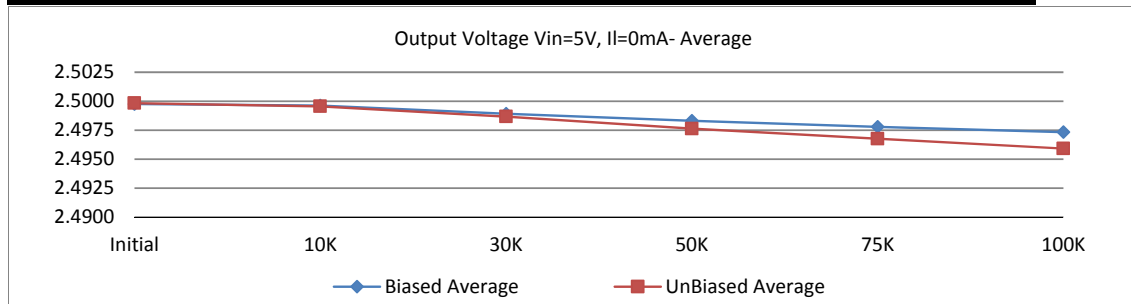
Analog Devices, Inc. does not recommend use of this data to qualify other product grades or process levels. Analog Devices, Inc. is not responsible and has no liability for any consequences, and all applicable Warranties are null and void if any Analog Devices product is modified in any way or used outside of normal environmental and operating conditions, including the parameters specified in the corresponding data sheet. Analog Devices, Inc. does not guarantee that wafer manufacturing is the same for all process levels.

ISY @ Vin=5V & IL=0mA

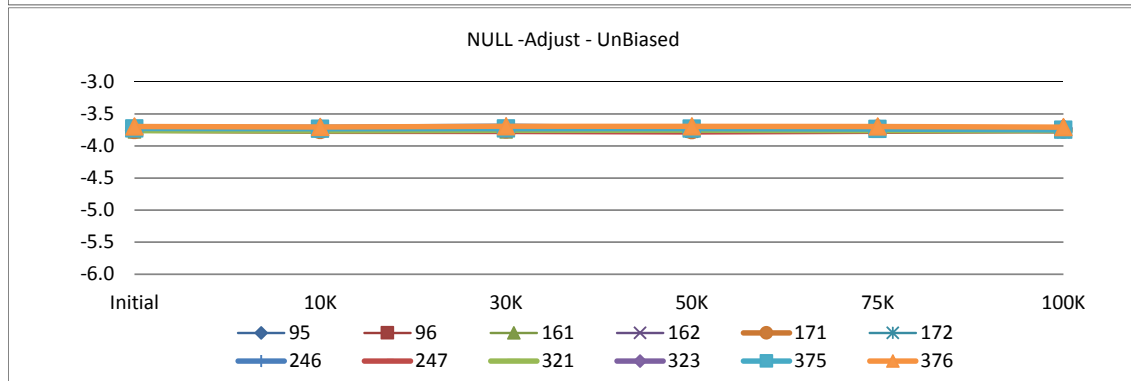
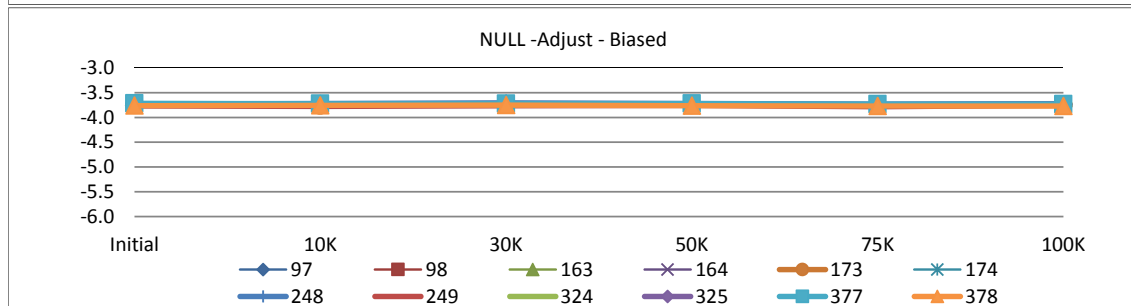
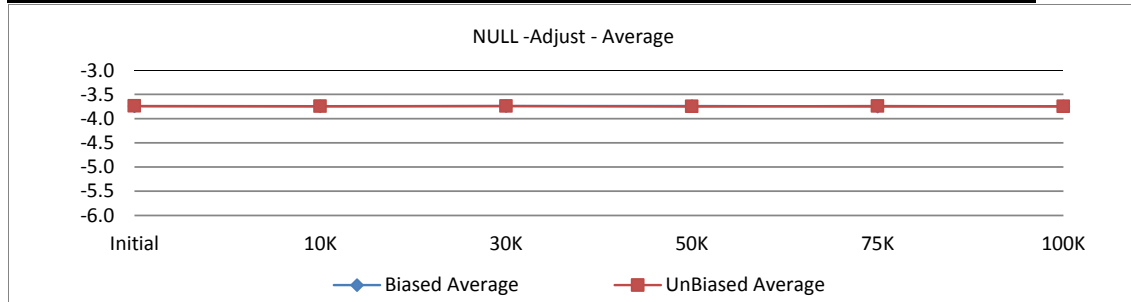
T# 1	SN	Initial	10K	30K	50K	75K	100K	uA
Control	93	317.6	321.7	325.8	323.7	318.7	318.2	<450
	244	316.2	321.0	319.4	320.1	320.3	316.5	
Biased	97	320.5	321.8	321.8	322.4	318.2	320.1	
	98	323.0	326.3	323.5	321.9	319.0	320.2	
	163	319.7	321.9	322.5	321.6	320.0	320.1	
	164	321.1	320.1	323.5	322.2	319.0	319.8	
	173	316.3	320.7	322.2	320.9	317.4	316.4	
	174	321.3	324.3	324.0	324.6	322.0	323.4	
	248	319.4	320.1	323.9	318.8	319.4	317.2	
	249	323.5	323.5	324.2	322.9	321.4	320.3	
	324	322.1	322.1	322.7	322.7	320.4	318.3	
	325	317.9	319.0	322.2	320.8	318.0	316.4	
	377	319.3	319.7	321.5	322.6	317.5	317.1	
	378	324.1	324.2	324.6	324.4	322.6	319.1	
	Min	316.300	319.000	321.500	318.800	317.400	316.400	
	Max	324.100	326.300	324.600	324.600	322.600	323.400	
Average	320.683	321.975	323.050	322.150	319.575	319.033		
UnBiased	95	318.5	326.7	321.8	320.6	316.9	317.2	
	96	321.6	322.9	323.4	321.5	318.3	320.3	
	161	319.4	319.9	319.6	319.3	318.2	316.7	
	162	318.5	319.1	321.2	321.9	318.2	319.3	
	171	318.2	326.1	321.2	319.1	318.3	315.7	
	172	319.1	320.8	320.4	320.5	318.3	317.4	
	246	316.9	322.3	323.2	319.8	315.1	318.1	
	247	322.9	327.3	326.2	325.6	319.7	320.4	
	321	321.7	324.8	324.3	321.3	319.6	321.0	
	323	317.3	319.5	320.8	317.9	315.9	315.9	
	375	317.7	319.4	320.2	322.4	316.8	316.5	
	376	316.1	317.1	320.5	320.5	315.7	313.3	
	Min	316.100	317.100	319.600	317.900	315.100	313.300	
	Max	322.900	327.300	326.200	325.600	319.700	321.000	
Average	318.992	322.158	321.900	320.867	317.583	317.650		



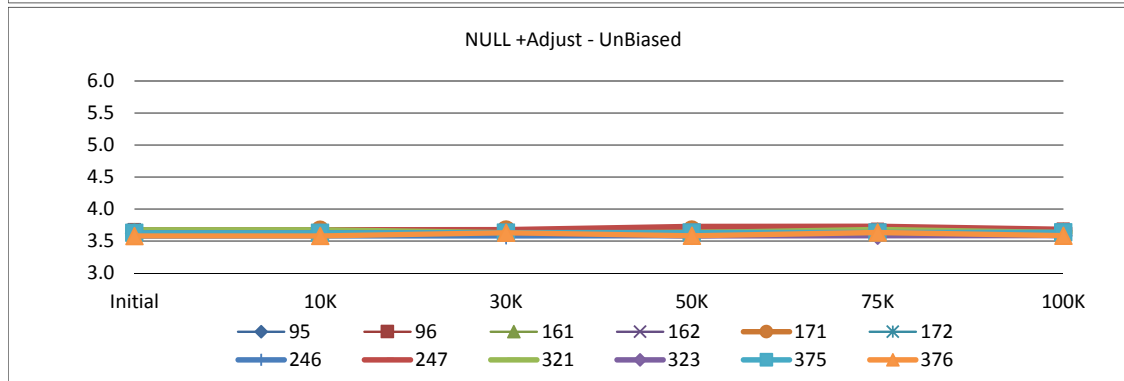
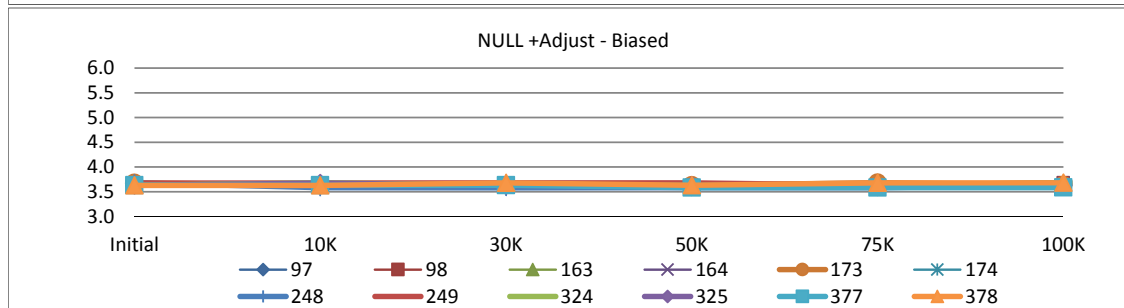
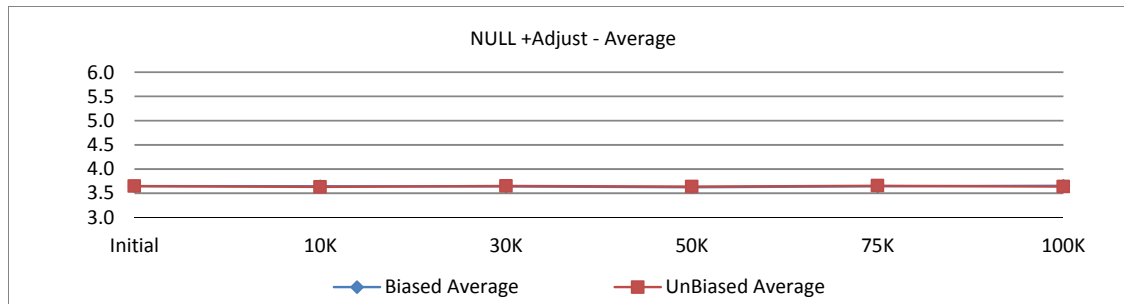
		Vout @ Vin=5V & IL=0mA						V	
		T#2	Initial	10K	30K	50K	75K	100K	Limit
Control	93	2.5009	2.5010	2.5009	2.5010	2.5008	2.5008	2.5008	>2.49
	244	2.4999	2.5000	2.5000	2.5000	2.4999	2.4999	2.4999	<2.5025
Biased	97	2.5002	2.5000	2.4994	2.4988	2.4983	2.4978		
	98	2.5009	2.5004	2.5001	2.4995	2.4990	2.4985		
	163	2.4990	2.4989	2.4980	2.4975	2.4969	2.4964		
	164	2.4991	2.4989	2.4981	2.4975	2.4970	2.4965		
	173	2.4990	2.4989	2.4981	2.4975	2.4970	2.4965		
	174	2.5002	2.5001	2.4992	2.4986	2.4980	2.4975		
	248	2.4996	2.4995	2.4988	2.4982	2.4977	2.4973		
	249	2.4997	2.4996	2.4988	2.4982	2.4977	2.4972		
	324	2.4993	2.4992	2.4985	2.4979	2.4974	2.4969		
	325	2.5012	2.5011	2.5005	2.4999	2.4994	2.4990		
	377	2.4989	2.4989	2.4983	2.4976	2.4971	2.4968		
	378	2.5000	2.5000	2.4993	2.4986	2.4980	2.4976		
	Min	2.4989	2.4989	2.4980	2.4975	2.4969	2.4964		
	Max	2.5012	2.5011	2.5005	2.4999	2.4994	2.4990		
Average	2.4998	2.4996	2.4989	2.4983	2.4978	2.4973			
UnBiased	95	2.4993	2.4988	2.4981	2.4971	2.4963	2.4954		
	96	2.5000	2.4998	2.4988	2.4978	2.4969	2.4960		
	161	2.4991	2.4995	2.4982	2.4973	2.4965	2.4958		
	162	2.4998	2.4990	2.4984	2.4973	2.4963	2.4953		
	171	2.5007	2.5003	2.4995	2.4985	2.4976	2.4967		
	172	2.4997	2.4995	2.4985	2.4973	2.4963	2.4953		
	246	2.5004	2.5000	2.4994	2.4983	2.4975	2.4968		
	247	2.5000	2.4997	2.4988	2.4975	2.4967	2.4958		
	321	2.4999	2.4996	2.4985	2.4975	2.4966	2.4957		
	323	2.5003	2.5001	2.4992	2.4983	2.4974	2.4966		
	375	2.4992	2.4990	2.4980	2.4970	2.4961	2.4952		
	376	2.4996	2.4994	2.4987	2.4977	2.4969	2.4964		
	Min	2.4991	2.4988	2.4980	2.4970	2.4961	2.4952		
	Max	2.5007	2.5003	2.4995	2.4985	2.4976	2.4968		
Average	2.4998	2.4996	2.4987	2.4976	2.4968	2.4959			



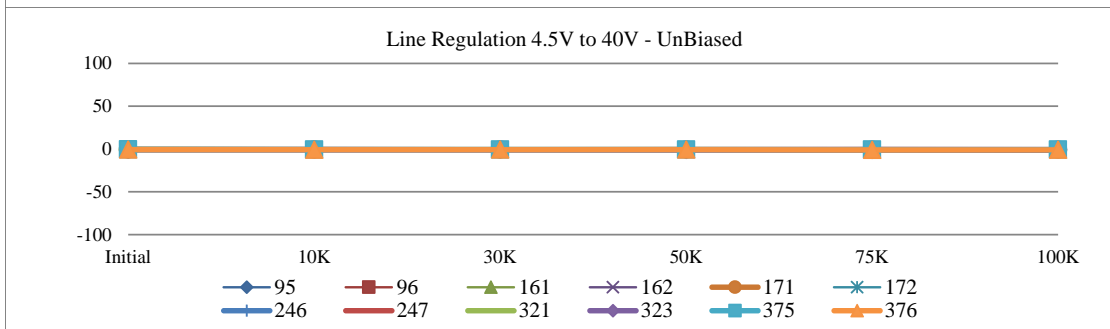
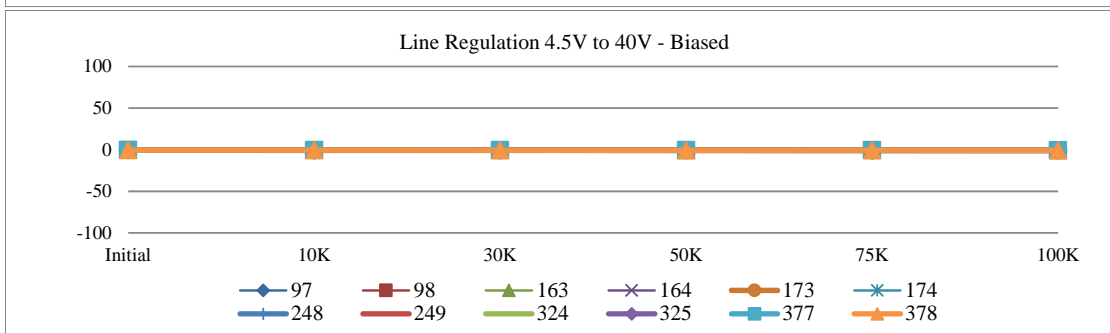
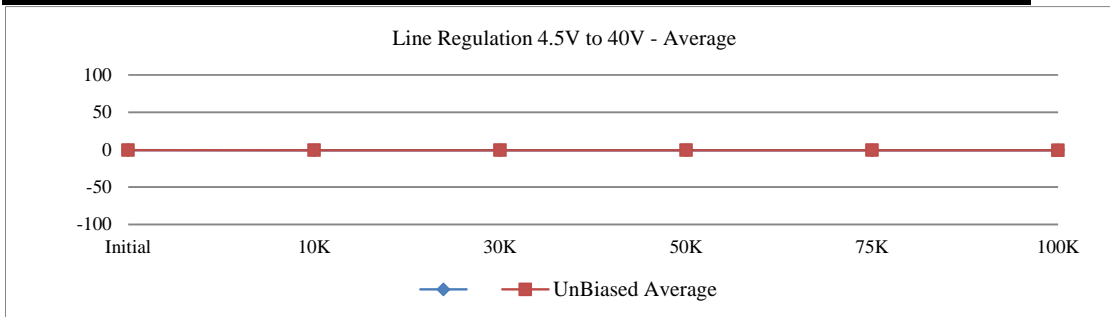
	T# 3	NULL -Adjust						%FS
		SN	Initial	10K	30K	50K	75K	
Control	93	-3.738	-3.738	-3.760	-3.731	-3.749	-3.749	<-3
	244	-3.686	-3.680	-3.697	-3.697	-3.703	-3.704	
Biased	97	-3.749	-3.745	-3.750	-3.746	-3.758	-3.758	
	98	-3.766	-3.767	-3.739	-3.746	-3.763	-3.752	
	163	-3.733	-3.722	-3.752	-3.754	-3.737	-3.743	
	164	-3.711	-3.728	-3.735	-3.713	-3.720	-3.732	
	173	-3.751	-3.763	-3.746	-3.754	-3.766	-3.755	
	174	-3.749	-3.761	-3.728	-3.734	-3.741	-3.719	
	248	-3.727	-3.716	-3.706	-3.718	-3.730	-3.719	
	249	-3.767	-3.780	-3.764	-3.758	-3.782	-3.754	
	324	-3.751	-3.746	-3.741	-3.747	-3.759	-3.743	
	325	-3.731	-3.743	-3.743	-3.738	-3.738	-3.734	
	377	-3.716	-3.723	-3.723	-3.719	-3.731	-3.731	
	378	-3.761	-3.756	-3.751	-3.763	-3.770	-3.771	
	Min	-3.767	-3.780	-3.764	-3.763	-3.782	-3.771	
	Max	-3.711	-3.716	-3.706	-3.713	-3.720	-3.719	
Average	-3.743	-3.746	-3.740	-3.741	-3.750	-3.743		
UnBiased	95	-3.705	-3.723	-3.723	-3.731	-3.743	-3.740	
	96	-3.756	-3.755	-3.741	-3.765	-3.743	-3.744	
	161	-3.781	-3.757	-3.782	-3.765	-3.772	-3.768	
	162	-3.751	-3.763	-3.747	-3.777	-3.756	-3.785	
	171	-3.755	-3.755	-3.745	-3.758	-3.731	-3.750	
	172	-3.751	-3.757	-3.758	-3.777	-3.750	-3.769	
	246	-3.713	-3.710	-3.692	-3.723	-3.713	-3.726	
	247	-3.756	-3.773	-3.774	-3.783	-3.772	-3.762	
	321	-3.762	-3.768	-3.758	-3.754	-3.762	-3.762	
	323	-3.714	-3.715	-3.728	-3.723	-3.719	-3.720	
	375	-3.728	-3.734	-3.729	-3.731	-3.738	-3.750	
	376	-3.698	-3.704	-3.693	-3.696	-3.697	-3.708	
	Min	-3.781	-3.773	-3.782	-3.783	-3.772	-3.785	
	Max	-3.698	-3.704	-3.692	-3.696	-3.697	-3.708	
Average	-3.739	-3.743	-3.739	-3.749	-3.741	-3.749		



	T# 1	NULL +Adjust						%FS	
		SN	Initial	10K	30K	50K	75K		100K
Control	93	3.628	3.628	3.628	3.628	3.628	3.678	3.678	>3
	244	3.581	3.630	3.581	3.581	3.581	3.581	3.630	
Biased	97	3.678	3.679	3.631	3.631	3.631	3.681	3.682	
	98	3.628	3.629	3.679	3.630	3.630	3.631	3.681	
	163	3.631	3.631	3.633	3.584	3.683	3.635		
	164	3.631	3.631	3.632	3.633	3.634	3.684		
	173	3.680	3.631	3.632	3.633	3.683	3.635		
	174	3.629	3.630	3.631	3.632	3.633	3.633		
	248	3.679	3.581	3.582	3.583	3.584	3.634		
	249	3.679	3.679	3.681	3.681	3.633	3.683		
	324	3.631	3.680	3.632	3.633	3.634	3.683		
	325	3.628	3.677	3.629	3.630	3.631	3.631		
	377	3.631	3.631	3.632	3.584	3.585	3.585		
	378	3.630	3.630	3.680	3.632	3.682	3.682		
	Min	3.628	3.581	3.582	3.583	3.584	3.585		
	Max	3.680	3.680	3.681	3.681	3.683	3.684		
Average	3.646	3.642	3.639	3.624	3.641	3.654			
UnBiased	95	3.631	3.582	3.632	3.634	3.635	3.587		
	96	3.679	3.630	3.681	3.633	3.683	3.685		
	161	3.680	3.630	3.632	3.683	3.684	3.685		
	162	3.679	3.631	3.681	3.634	3.684	3.686		
	171	3.629	3.678	3.680	3.681	3.633	3.635		
	172	3.679	3.631	3.681	3.634	3.635	3.636		
	246	3.580	3.581	3.582	3.583	3.633	3.585		
	247	3.679	3.679	3.680	3.732	3.733	3.685		
	321	3.679	3.679	3.632	3.633	3.684	3.636		
	323	3.629	3.630	3.631	3.583	3.584	3.586		
	375	3.631	3.631	3.633	3.634	3.635	3.637		
	376	3.581	3.581	3.632	3.584	3.634	3.586		
	Min	3.580	3.581	3.582	3.583	3.584	3.585		
	Max	3.680	3.679	3.681	3.732	3.733	3.686		
Average	3.646	3.630	3.648	3.637	3.655	3.636			



	T#3	Line Reg. 4.5V to 40V						ppm/V
		SN	Initial	10K	30K	50K	75K	
Control	93	-0.4586	-0.4334	-0.3518	-0.3204	-0.3455	-0.5026	<100
	244	-0.5530	-0.6410	-0.7855	-0.7918	-0.7290	-0.7164	
Biased	97	-0.5530	-0.6095	-0.5971	-0.5344	-0.7609	-0.7170	
	98	-0.4774	-0.6848	-0.7729	-0.6851	-0.6287	-0.6351	
	163	-0.4904	-0.6161	-0.6226	-0.5284	-0.6796	-0.8244	
	164	-0.3646	-0.5721	-0.5597	-0.7548	-0.7739	-0.7300	
	173	-0.5972	-0.6412	-0.7295	-0.6102	-0.7802	-0.9314	
	174	-0.5216	-0.6095	-0.5155	-0.6728	-0.6918	-0.7423	
	248	-0.5845	-0.5657	-0.7230	-0.7546	-0.8869	-0.8052	
	249	-0.4651	-0.6914	-0.6539	-0.5785	-0.7359	-0.7487	
	324	-0.5469	-0.6978	-0.7923	-0.7170	-0.8115	-0.8683	
	325	-0.5465	-0.8228	-0.7037	-0.7478	-0.8674	-0.9619	
	377	-0.4778	-0.6978	-0.6791	-0.7045	-0.7487	-0.8369	
	378	-0.4525	-0.5404	-0.6726	-0.7985	-0.7358	-0.8177	
	Min	-0.5972	-0.8228	-0.7923	-0.7985	-0.8869	-0.9619	
	Max	-0.3646	-0.5404	-0.5155	-0.5284	-0.6287	-0.6351	
Average	-0.5065	-0.6458	-0.6685	-0.6739	-0.7584	-0.8016		
UnBiased	95	-0.6160	-0.6853	-0.7798	-0.6920	-0.7112	-0.9066	
	96	-0.5404	-0.6976	-0.5847	-0.8114	-0.7739	-0.8371	
	161	-0.6286	-0.4965	-0.9810	-0.9499	-0.9502	-0.9631	
	162	-0.6159	-0.7481	-0.5219	-0.6228	-0.6356	-0.7052	
	171	-0.6094	-0.6409	-0.7354	-0.6602	-0.8052	-0.8243	
	172	-0.5028	-0.7165	-0.5408	-0.6039	-0.5853	-0.8877	
	246	-0.6849	-0.7289	-0.7480	-0.8804	-0.7486	-0.9124	
	247	-0.4965	-0.5153	-0.5595	-0.6290	-0.4845	-0.6295	
	321	-0.5405	-0.6411	-0.6288	-0.5472	-0.7111	-0.7617	
	323	-0.7854	-0.7226	-0.7355	-0.9621	-0.9499	-0.9187	
	375	-0.4840	-0.6224	-0.5975	-0.6166	-0.7112	-0.6800	
	376	-0.6914	-0.8045	-0.7419	-0.6919	-1.0193	-0.8748	
	Min	-0.7854	-0.8045	-0.9810	-0.9621	-1.0193	-0.9631	
	Max	-0.4840	-0.4965	-0.5219	-0.5472	-0.4845	-0.6295	
Average	-0.5997	-0.6683	-0.6796	-0.7223	-0.7572	-0.8251		



	T#4	Load Reg 0 to 10mA						ppm/mA
		SN	Initial	10K	30K	50K	75K	
Control	93	12.17580	12.26450	13.49160	11.90800	12.28750	12.17590	<60
	244	13.05060	12.18010	13.85330	12.29180	12.64920	12.69370	
Biased	97	13.53940	13.65240	14.30300	12.29770	12.23290	12.79360	
	98	13.84840	13.49420	14.07580	12.13830	12.09580	12.00870	
	163	12.22940	14.14950	13.84200	12.05850	11.90500	12.28690	
	164	12.40780	12.34190	16.40880	11.54480	11.63620	12.10770	
	173	12.85420	12.27480	16.81060	12.41560	12.21680	12.10780	
	174	11.82210	11.91200	13.96940	11.91920	12.18980	12.34860	
	248	12.45000	16.15450	13.19030	12.63540	12.36970	12.52800	
	249	11.93630	12.27160	14.21720	12.30050	11.92310	12.08200	
	324	11.91560	12.54120	18.19240	12.23520	12.10340	12.12830	
	325	12.28570	14.24850	15.70210	12.80560	12.36140	12.76530	
	377	12.69840	12.25270	15.67110	12.30380	11.94860	12.30750	
	378	11.93440	11.64510	12.47380	11.76300	11.56450	12.39250	
	Min	11.82210	11.64510	12.47380	11.54480	11.56450	12.00870	
	Max	13.84840	16.15450	18.19240	12.80560	12.36970	12.79360	
Average	12.49348	13.07820	14.90471	12.20147	12.04560	12.32141		
UnBiased	95	14.54890	13.72610	14.95780	12.88670	12.84600	13.14110	
	96	12.67070	12.71670	13.77070	12.54820	12.53030	12.73570	
	161	13.18840	12.18260	14.93490	13.01960	13.04580	13.09450	
	162	11.55630	15.80060	12.25530	11.90330	11.63930	12.06890	
	171	12.80080	13.16020	15.95350	12.29940	12.34810	12.62070	
	172	12.89530	11.89300	13.43790	11.70220	12.04170	12.91790	
	246	11.82140	12.91630	19.59150	12.32250	12.63860	12.55300	
	247	12.62610	12.82860	13.97140	12.14780	11.77190	12.29000	
	321	11.84570	15.26130	13.61600	11.67870	12.44210	11.55310	
	323	13.94040	14.09820	14.59420	13.95230	13.97900	13.40280	
	375	11.93830	16.44810	15.62840	12.28440	12.31080	12.40440	
	376	15.99720	17.15900	15.60160	13.41980	12.90980	13.04670	
	Min	11.55630	11.89300	12.25530	11.67870	11.63930	11.55310	
	Max	15.99720	17.15900	19.59150	13.95230	13.97900	13.40280	
Average	12.98579	14.01589	14.85943	12.51374	12.54195	12.65240		

