

## RADIATION TEST REPORT

PRODUCT:	AD8561AL/QMLL
GAMMA:	0, 50k, 75k, 100k
GAMMA SOURCE:	Co60
DOSE RATE:	7.3mRad/s TM1019.8 Condition D
FACILITIES:	University of Massachusetts @ Lowell
TESTED:	2010

The RADTEST<sup>SM</sup> 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.

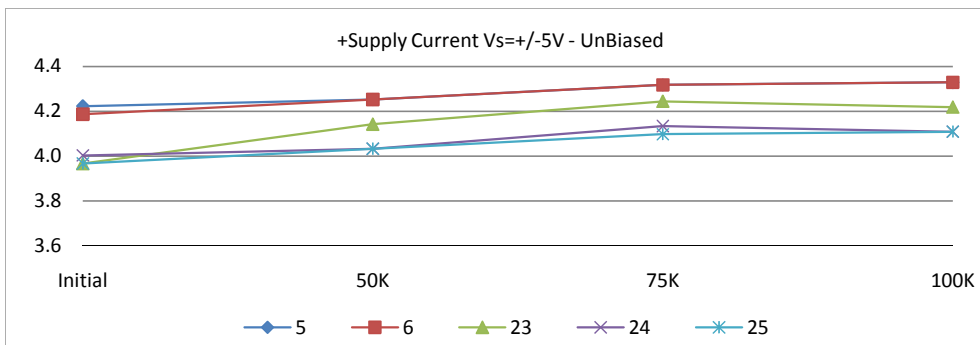
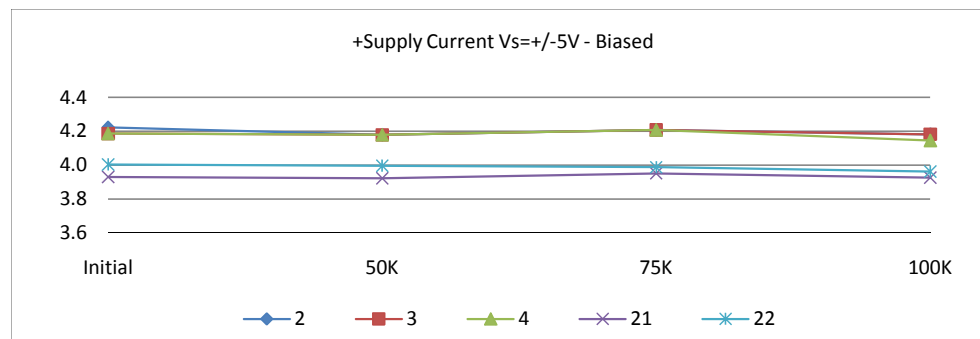
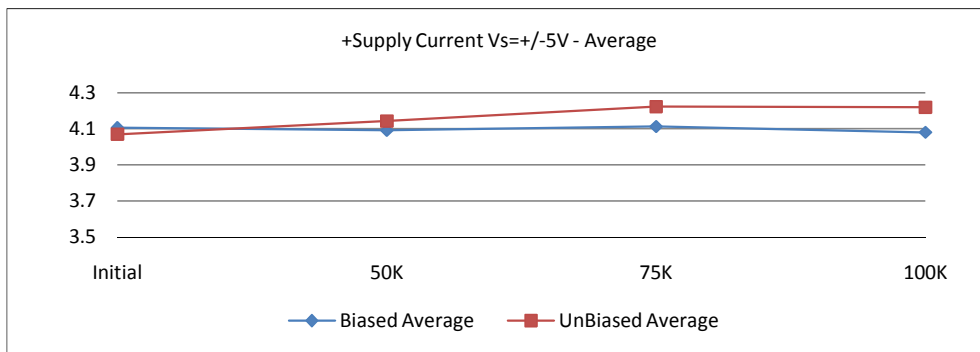
It is the responsibility of the Procuring Activity to screen products from Analog Devices, Inc. for compliance to Nuclear Hardness Critical Items (HCI) specifications.

### WARNING:

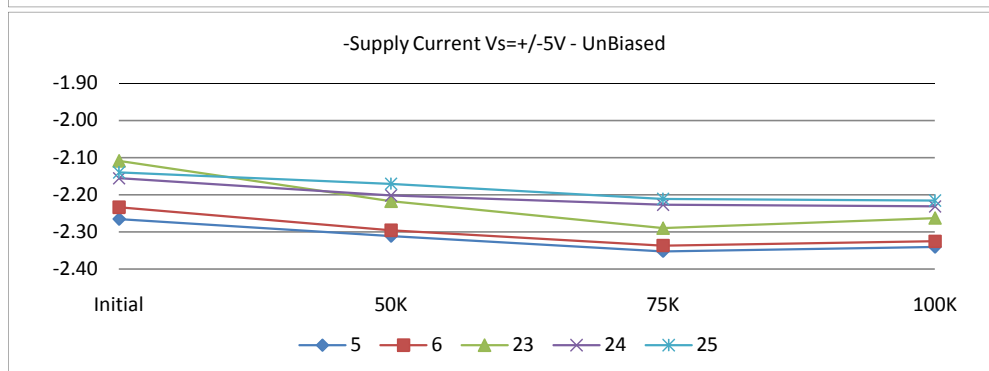
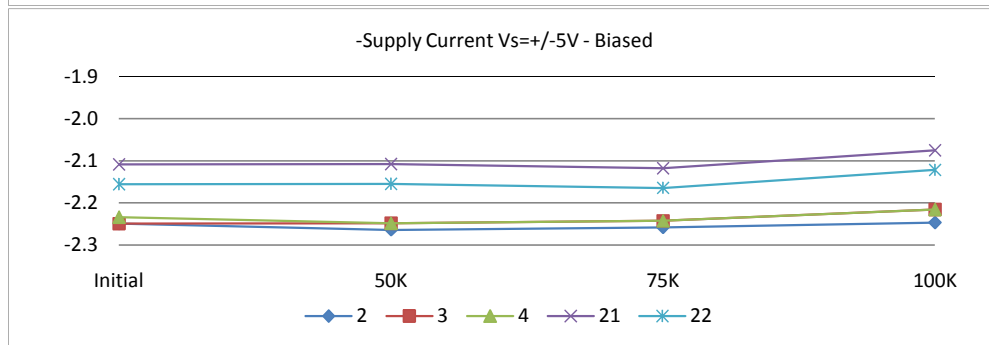
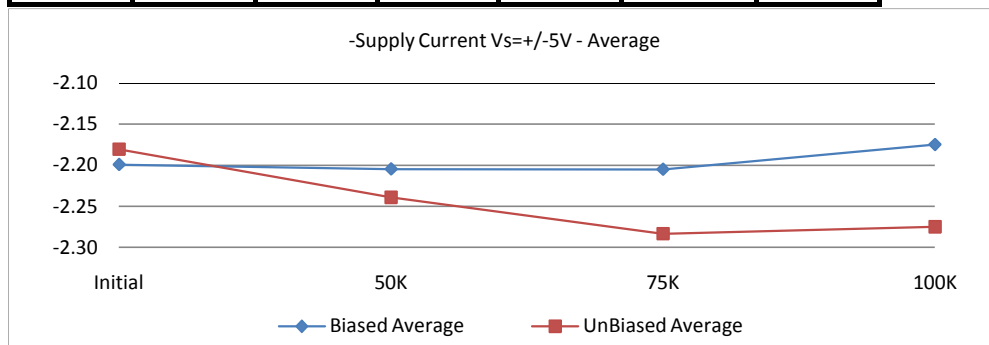
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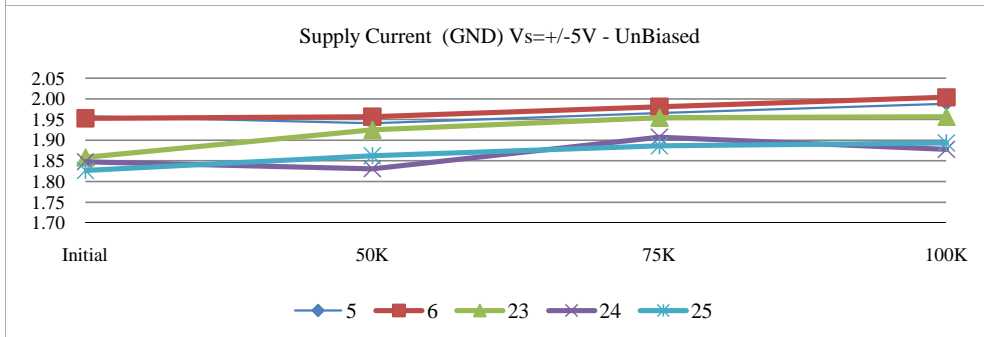
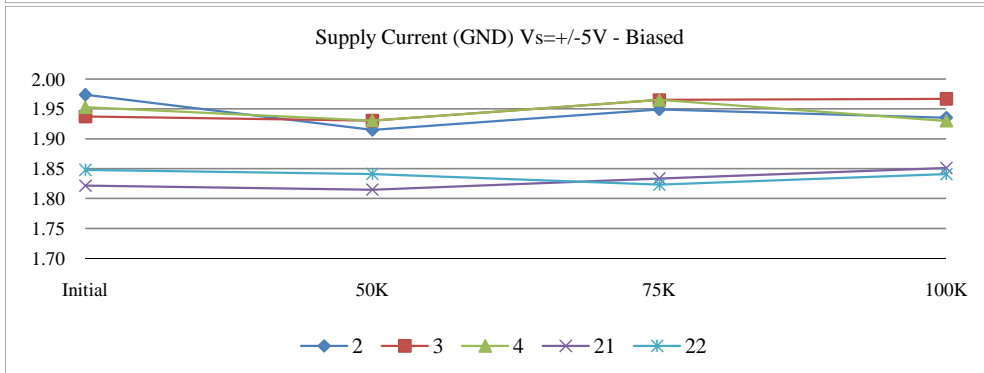
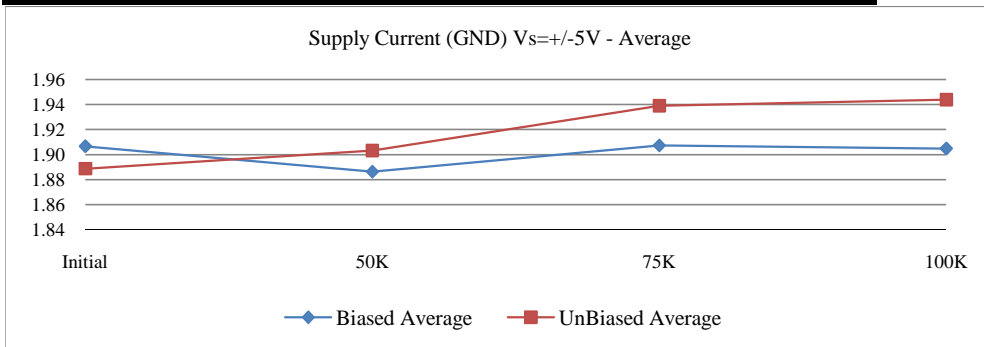
	T# 9	+V_A Isy @ VS=+-5V				mA
	SN	Initial	50K	75K	100K	Limit
Control	7	4.2232	4.2157	4.2076	4.1823	<7
	19	4.0034	4.0325	4.0245	4.0358	
Biased	2	4.2232	4.1790	4.2076	4.1823	
	3	4.1866	4.1790	4.2076	4.1823	
	4	4.1866	4.1790	4.2076	4.1457	
	21	3.9301	3.9226	3.9512	3.9259	
	22	4.0034	3.9959	3.9879	3.9625	
	Min	3.9301	3.9226	3.9512	3.9259	
	Max	4.2232	4.1790	4.2076	4.1823	
	Average	4.1060	4.0911	4.1124	4.0797	
UnBiased	5	4.2232	4.2523	4.3175	4.3288	
	6	4.1866	4.2523	4.3175	4.3288	
	23	3.9668	4.1424	4.2443	4.2189	
	24	4.0034	4.0325	4.1344	4.1090	
	25	3.9668	4.0325	4.0978	4.1090	
	Min	3.9668	4.0325	4.0978	4.1090	
	Max	4.2232	4.2523	4.3175	4.3288	
	Average	4.0693	4.1424	4.2223	4.2189	



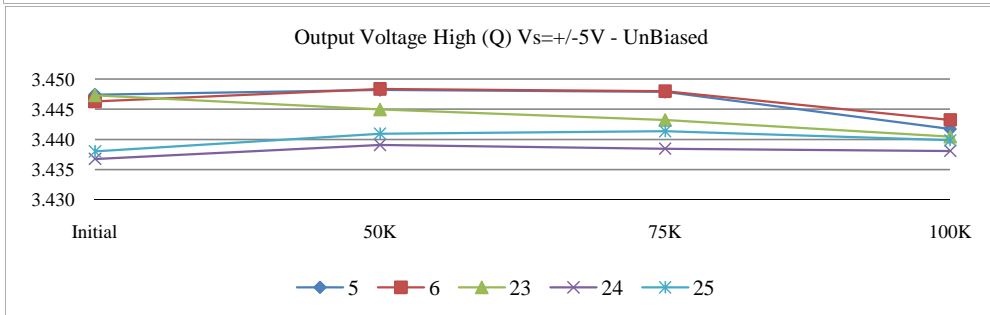
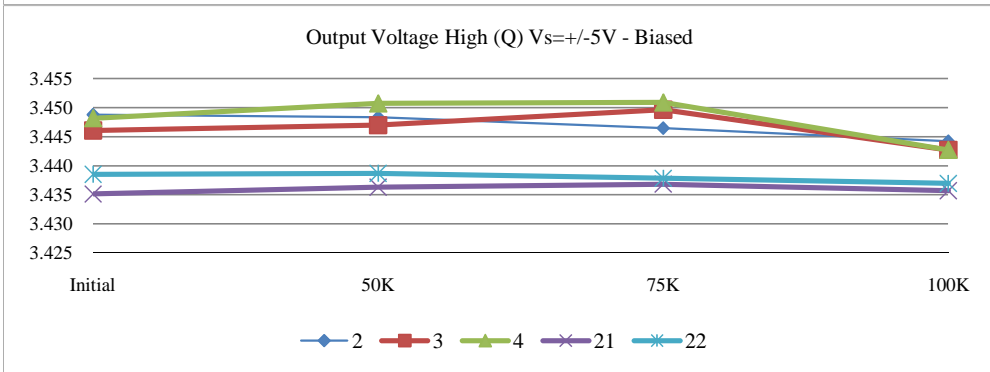
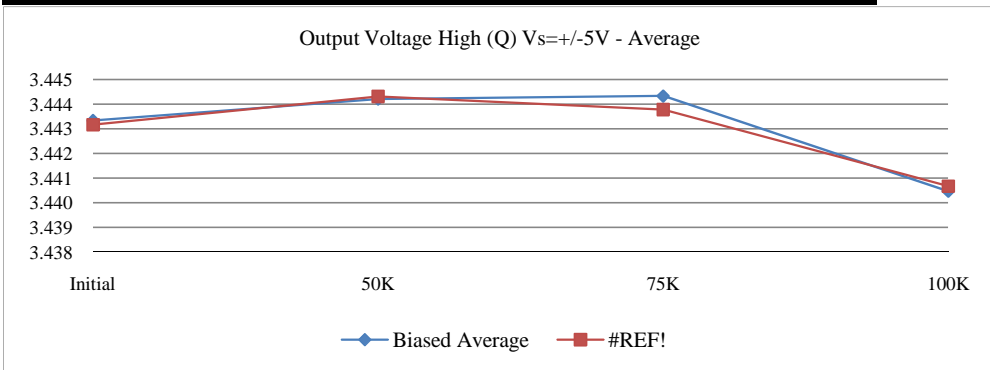
	T#10	-V_A Isy @ VS=+-5V				mA
	SN	Initial	50K	75K	100K	Limit
Control	7	-2.2494	-2.2485	-2.2583	-2.2468	>-5
	19	-2.1556	-2.1547	-2.1644	-2.1530	
Biased	2	-2.2494	-2.2641	-2.2583	-2.2468	
	3	-2.2494	-2.2485	-2.2426	-2.2156	
	4	-2.2338	-2.2485	-2.2426	-2.2156	
	21	-2.1086	-2.1077	-2.1175	-2.0748	
	22	-2.1556	-2.1547	-2.1644	-2.1217	
	Min	-2.2494	-2.2641	-2.2583	-2.2468	
	Max	-2.1086	-2.1077	-2.1175	-2.0748	
	Average	-2.1993	-2.2047	-2.2051	-2.1749	
UnBiased	5	-2.2650	-2.3111	-2.3521	-2.3407	
	6	-2.2338	-2.2954	-2.3365	-2.3250	
	23	-2.1086	-2.2172	-2.2896	-2.2625	
	24	-2.1556	-2.2016	-2.2270	-2.2312	
	25	-2.1399	-2.1703	-2.2114	-2.2156	
	Min	-2.2650	-2.3111	-2.3521	-2.3407	
	Max	-2.1086	-2.1703	-2.2114	-2.2156	
	Average	-2.1806	-2.2391	-2.2833	-2.2750	



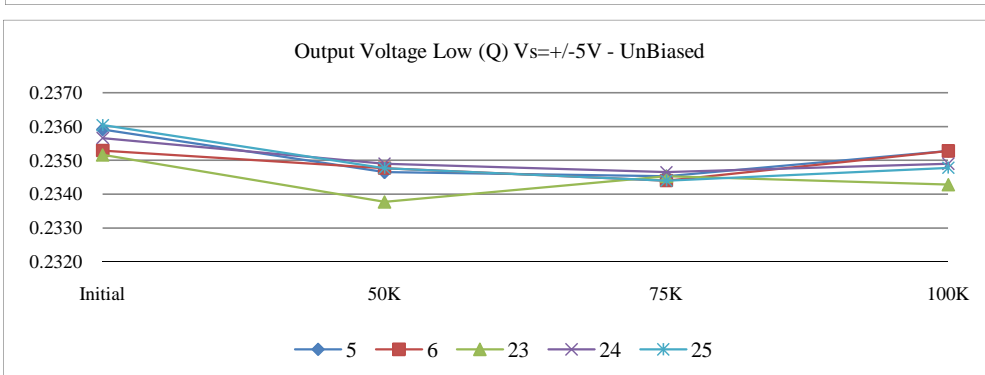
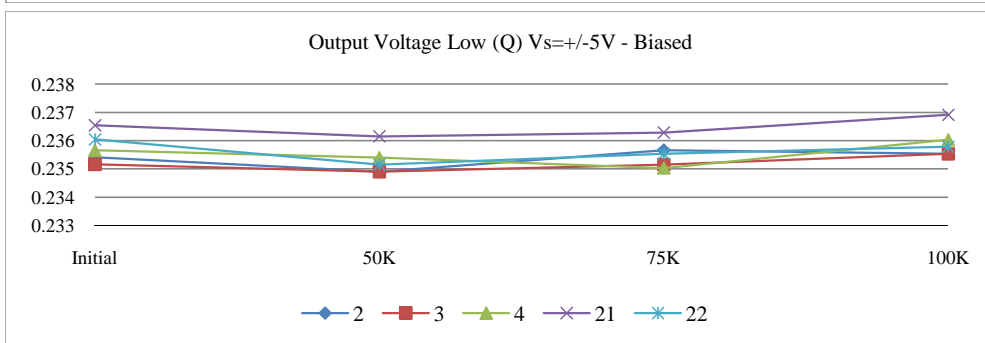
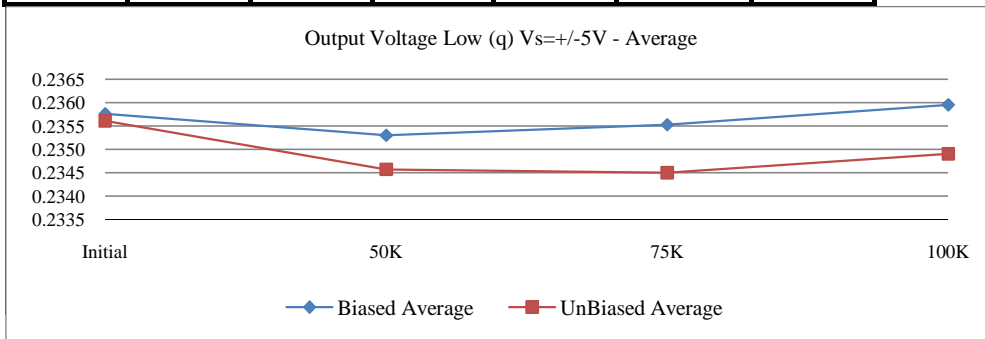
	T#11	GND I: @ VS=+-5V				mA
	SN	Initial	50K	75K	100K	Limit
Control	7	1.9738	1.9672	1.9494	1.9355	<3.5
	19	1.8478	1.8778	1.8601	1.8828	
Biased	2	1.9738	1.9149	1.9494	1.9355	
	3	1.9372	1.9305	1.9650	1.9667	
	4	1.9528	1.9305	1.9650	1.9301	
	21	1.8215	1.8149	1.8337	1.8511	
	22	1.8478	1.8412	1.8234	1.8408	
	Min	1.8215	1.8149	1.8234	1.8408	
	Max	1.9738	1.9305	1.9650	1.9667	
	Average	1.9066	1.8864	1.9073	1.9048	
UnBiased	5	1.9582	1.9412	1.9654	1.9881	
	6	1.9528	1.9569	1.9811	2.0038	
	23	1.8581	1.9252	1.9547	1.9564	
	24	1.8478	1.8309	1.9074	1.8778	
	25	1.8269	1.8622	1.8864	1.8935	
	Min	1.8269	1.8309	1.8864	1.8778	
	Max	1.9582	1.9569	1.9811	2.0038	
	Average	1.8888	1.9033	1.9390	1.9439	



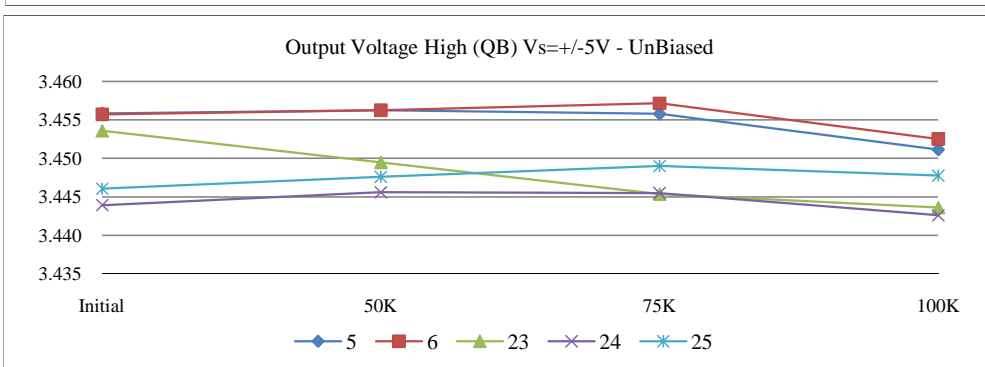
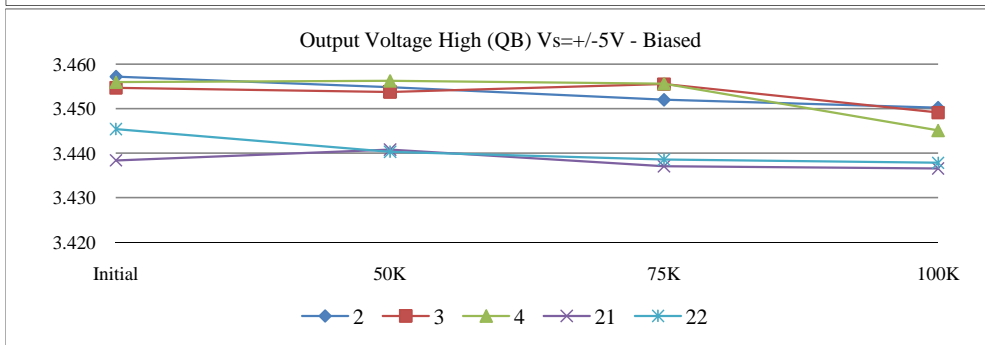
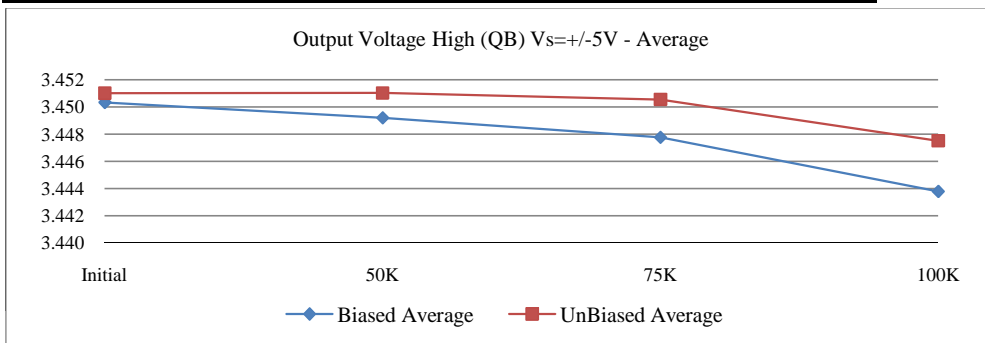
	T#25	VOH(Q) Vs=+-5V				V
	SN	Initial	50K	75K	100K	Limit
Control	7	3.4464	3.4506	3.4462	3.4471	>2.6
	19	3.4364	3.4382	3.4368	3.4395	
Biased	2	3.4488	3.4484	3.4465	3.4442	
	3	3.4461	3.4470	3.4496	3.4427	
	4	3.4482	3.4507	3.4509	3.4427	
	21	3.4351	3.4363	3.4368	3.4357	
	22	3.4385	3.4387	3.4378	3.4370	
	Min	3.4351	3.4363	3.4368	3.4357	
	Max	3.4488	3.4507	3.4509	3.4442	
	Average	3.4433	3.4442	3.4443	3.4405	
UnBiased	5	3.4474	3.4482	3.4479	3.4417	
	6	3.4463	3.4484	3.4480	3.4432	
	23	3.4473	3.4450	3.4432	3.4405	
	24	3.4368	3.4391	3.4385	3.4381	
	25	3.4380	3.4410	3.4414	3.4399	
	Min	3.4368	3.4391	3.4385	3.4381	
	Max	3.4474	3.4484	3.4480	3.4432	
	Average	3.4432	3.4443	3.4438	3.4407	



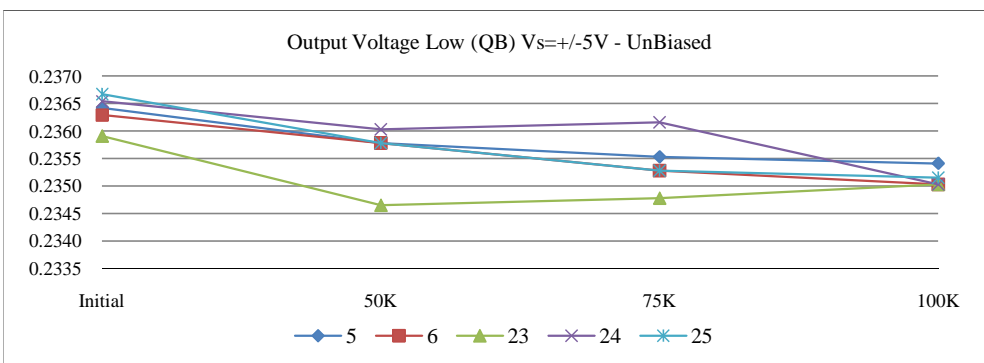
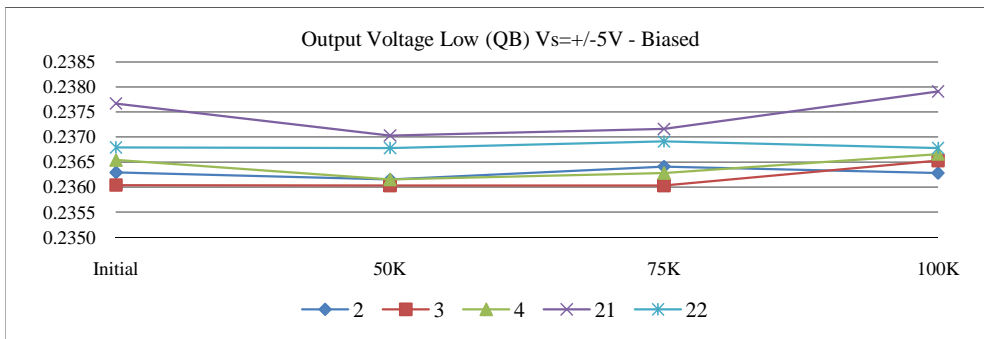
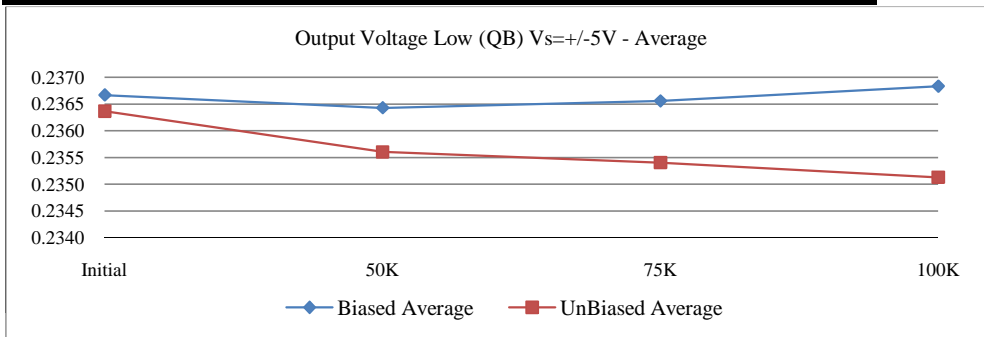
	T#26	VOL(Q) Vs=+-5V				V
	SN	Initial	50K	75K	100K	Limit
Control	7	0.2355	0.2358	0.2362	0.2360	<0.3
	19	0.2360	0.2354	0.2360	0.2355	
Biased	2	0.2354	0.2349	0.2357	0.2355	
	3	0.2352	0.2349	0.2352	0.2355	
	4	0.2357	0.2354	0.2350	0.2360	
	21	0.2365	0.2362	0.2363	0.2369	
	22	0.2360	0.2352	0.2355	0.2358	
	Min	0.2352	0.2349	0.2350	0.2355	
	Max	0.2365	0.2362	0.2363	0.2369	
	Average	0.2358	0.2353	0.2355	0.2360	
UnBiased	5	0.2359	0.2347	0.2345	0.2353	
	6	0.2353	0.2348	0.2344	0.2353	
	23	0.2352	0.2338	0.2345	0.2343	
	24	0.2357	0.2349	0.2347	0.2349	
	25	0.2360	0.2348	0.2344	0.2348	
	Min	0.2352	0.2338	0.2344	0.2343	
	Max	0.2360	0.2349	0.2347	0.2353	
	Average	0.2356	0.2346	0.2345	0.2349	



	T#27	VOH(QB) Vs=+-5V				V
	SN	Initial	50K	75K	100K	Limit
Control	7	3.4537	3.4576	3.4535	3.4553	>2.6
	19	3.4437	3.4455	3.4441	3.4472	
Biased	2	3.4572	3.4549	3.4520	3.4503	
	3	3.4547	3.4537	3.4555	3.4491	
	4	3.4560	3.4563	3.4556	3.4451	
	21	3.4384	3.4408	3.4371	3.4366	
	22	3.4454	3.4403	3.4386	3.4378	
	Min	3.4384	3.4403	3.4371	3.4366	
	Max	3.4572	3.4563	3.4556	3.4503	
Average	3.4503	3.4492	3.4478	3.4438		
UnBiased	5	3.4558	3.4563	3.4558	3.4511	
	6	3.4557	3.4563	3.4572	3.4525	
	23	3.4536	3.4495	3.4454	3.4436	
	24	3.4439	3.4456	3.4455	3.4426	
	25	3.4461	3.4476	3.4490	3.4478	
	Min	3.4439	3.4456	3.4454	3.4426	
	Max	3.4558	3.4563	3.4572	3.4525	
Average	3.4510	3.4510	3.4506	3.4475		

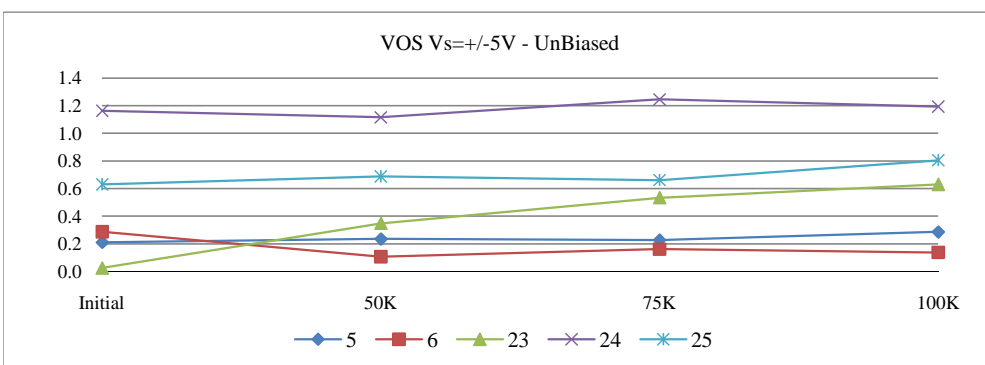
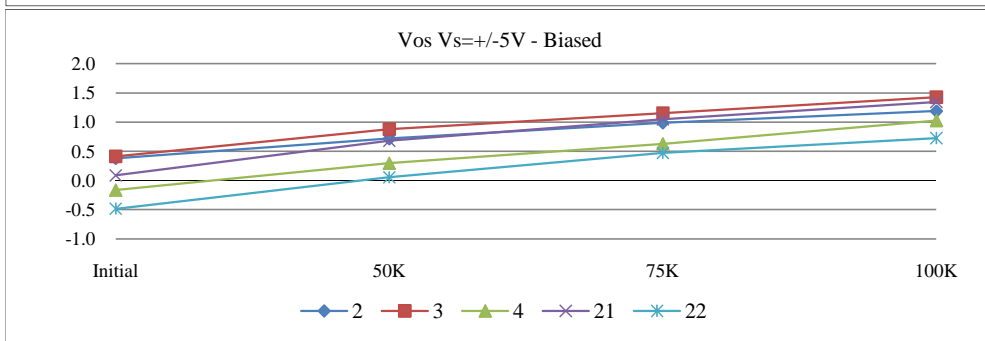
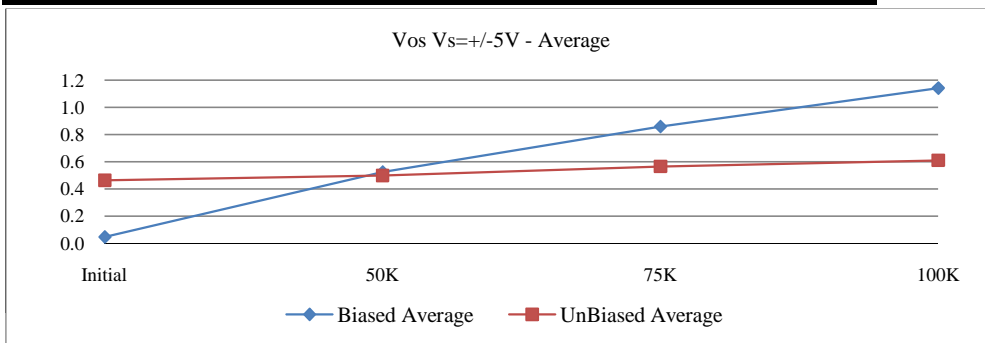


	T#28	VOL(QB) Vs=+-5V				V
	SN	Initial	50K	75K	100K	Limit
Control	7	0.2365	0.2368	0.2369	0.2368	<0.3
	19	0.2365	0.2363	0.2363	0.2360	
Biased	2	0.2363	0.2362	0.2364	0.2363	
	3	0.2360	0.2360	0.2360	0.2365	
	4	0.2365	0.2362	0.2363	0.2367	
	21	0.2377	0.2370	0.2372	0.2379	
	22	0.2368	0.2368	0.2369	0.2368	
	Min	0.2360	0.2360	0.2360	0.2363	
	Max	0.2377	0.2370	0.2372	0.2379	
	Average	0.2367	0.2364	0.2366	0.2368	
UnBiased	5	0.2364	0.2358	0.2355	0.2354	
	6	0.2363	0.2358	0.2353	0.2350	
	23	0.2359	0.2347	0.2348	0.2350	
	24	0.2365	0.2360	0.2362	0.2350	
	25	0.2367	0.2358	0.2353	0.2352	
	Min	0.2359	0.2347	0.2348	0.2350	
	Max	0.2367	0.2360	0.2362	0.2354	
	Average	0.2364	0.2356	0.2354	0.2351	

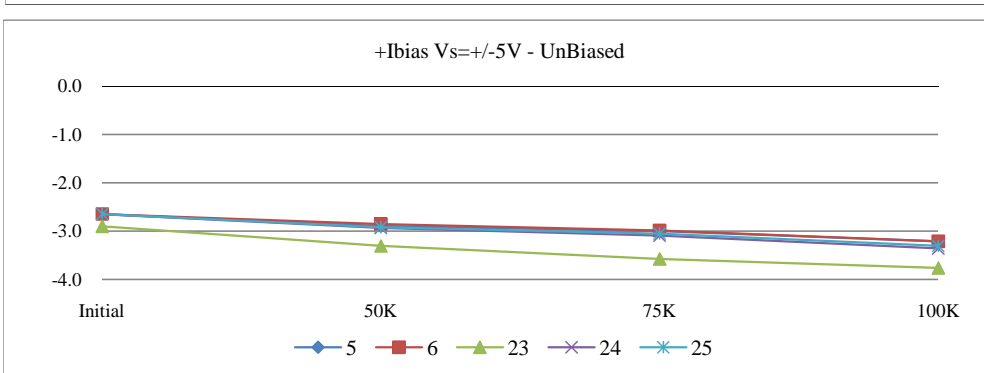
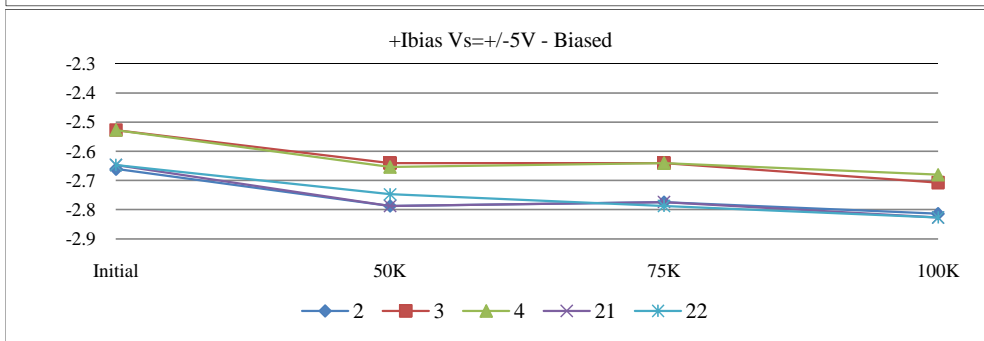
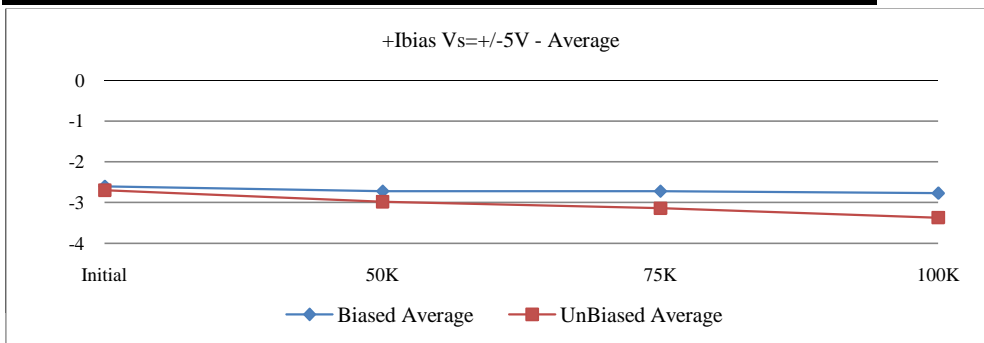




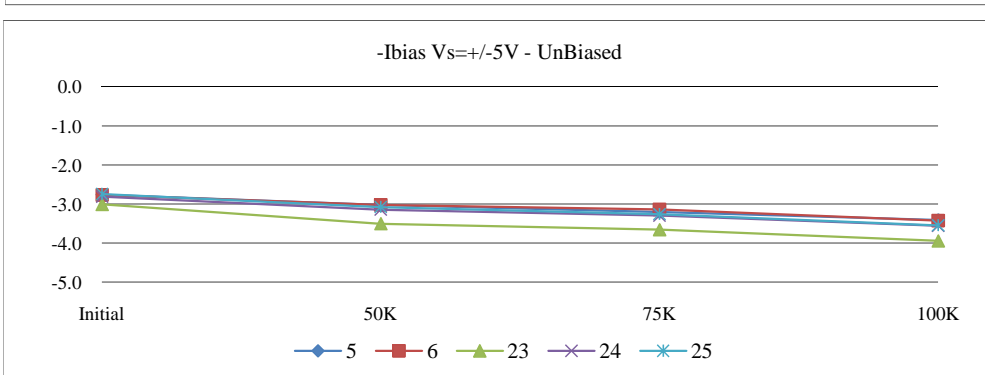
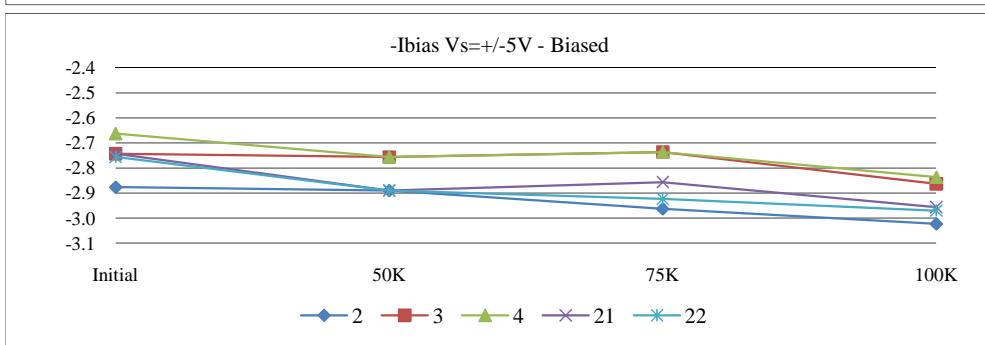
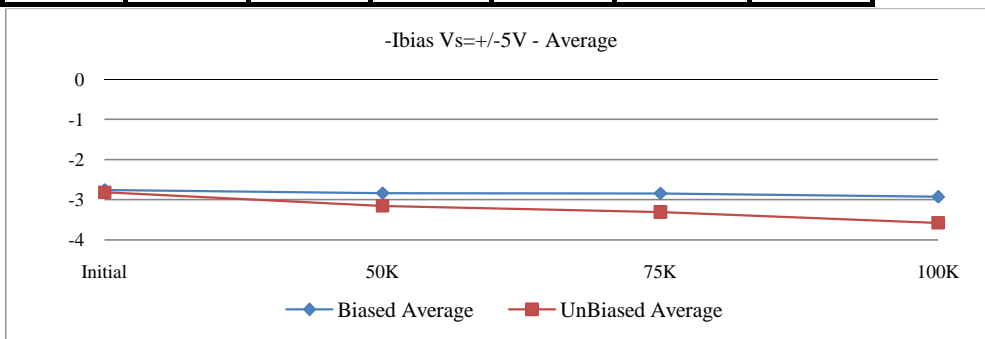
	T#32	VOS $V_s=\pm 5V$				mV
	SN	Initial	50K	75K	100K	Limit
Control	7	0.6211	0.5380	0.4753	0.5769	<10
	19	0.2245	0.3126	0.2794	0.4082	
Biased	2	0.3806	0.7183	0.9904	1.1895	
	3	0.4123	0.8776	1.1541	1.4259	
	4	-0.1618	0.2953	0.6286	1.0259	
	21	0.0869	0.6804	1.0494	1.3438	
	22	-0.4838	0.0536	0.4712	0.7249	
	Min	-0.4838	0.0536	0.4712	0.7249	
	Max	0.4123	0.8776	1.1541	1.4259	
	Average	0.0468	0.5250	0.8588	1.1420	
UnBiased	5	0.2101	0.2351	0.2273	0.2863	
	6	0.2866	0.1069	0.1612	0.1373	
	23	0.0248	0.3483	0.5333	0.6302	
	24	1.1629	1.1155	1.2450	1.1930	
	25	0.6305	0.6876	0.6609	0.8048	
	Min	0.0248	0.1069	0.1612	0.1373	
	Max	1.1629	1.1155	1.2450	1.1930	
	Average	0.4630	0.4987	0.5655	0.6103	



	T#53	IB+ +/-5V				uA
	SN	Initial	50K	75K	100K	Limit
Control	7	-2.5006	-2.5207	-2.4938	-2.5338	>-7
	19	-2.6873	-2.7074	-2.6538	-2.7205	
Biased	2	-2.6606	-2.7874	-2.7738	-2.8138	
	3	-2.5272	-2.6407	-2.6405	-2.7072	
	4	-2.5272	-2.6540	-2.6405	-2.6805	
	21	-2.6473	-2.7874	-2.7738	-2.8272	
	22	-2.6473	-2.7474	-2.7872	-2.8272	
	Min	-2.6606	-2.7874	-2.7872	-2.8272	
	Max	-2.5272	-2.6407	-2.6405	-2.6805	
	Average	-2.6019	-2.7234	-2.7232	-2.7712	
UnBiased	5	-2.6473	-2.8941	-3.0005	-3.2139	
	6	-2.6473	-2.8541	-2.9872	-3.2139	
	23	-2.9006	-3.3076	-3.5740	-3.7607	
	24	-2.6473	-2.9341	-3.0939	-3.3606	
	25	-2.6473	-2.9208	-3.0539	-3.3073	
	Min	-2.9006	-3.3076	-3.5740	-3.7607	
	Max	-2.6473	-2.8541	-2.9872	-3.2139	
	Average	-2.6979	-2.9821	-3.1419	-3.3713	



	T#54	IB- +/-5V				uA
	SN	Initial	50K	75K	100K	Limit
Control	7	-2.6093	-2.6227	-2.5894	-2.6229	>-7
	19	-2.8629	-2.8229	-2.8564	-2.8765	
Biased	2	-2.8763	-2.8896	-2.9632	-3.0234	
	3	-2.7428	-2.7562	-2.7363	-2.8632	
	4	-2.6627	-2.7562	-2.7363	-2.8365	
	21	-2.7428	-2.8896	-2.8564	-2.9566	
	22	-2.7562	-2.8896	-2.9231	-2.9700	
	Min	-2.8763	-2.8896	-2.9632	-3.0234	
	Max	-2.6627	-2.7562	-2.7363	-2.8365	
	Average	-2.7561	-2.8362	-2.8430	-2.9299	
UnBiased	5	-2.7562	-3.0231	-3.2034	-3.4105	
	6	-2.7695	-3.0231	-3.1367	-3.4238	
	23	-3.0097	-3.5036	-3.6572	-3.9444	
	24	-2.8095	-3.1432	-3.2969	-3.5573	
	25	-2.7428	-3.0765	-3.2568	-3.5439	
	Min	-3.0097	-3.5036	-3.6572	-3.9444	
	Max	-2.7428	-3.0231	-3.1367	-3.4105	
	Average	-2.8175	-3.1539	-3.3102	-3.5760	



T#55		IOS +/-5V				uA
SN		Initial	50K	75K	100K	Limit
Control	7	-0.1088	-0.1020	-0.0957	-0.0891	+/-4
	19	-0.1757	-0.1155	-0.2026	-0.1561	
Biased	2	-0.2157	-0.1022	-0.1893	-0.2095	
	3	-0.2156	-0.1155	-0.0958	-0.1560	
	4	-0.1355	-0.1021	-0.0958	-0.1560	
	21	-0.0956	-0.1022	-0.0826	-0.1295	
	22	-0.1089	-0.1422	-0.1360	-0.1428	
	Min	-0.2157	-0.1422	-0.1893	-0.2095	
	Max	-0.0956	-0.1021	-0.0826	-0.1295	
	Average	-0.1542	-0.1128	-0.1199	-0.1588	
UnBiased	5	-0.1089	-0.1290	-0.2029	-0.1966	
	6	-0.1222	-0.1690	-0.1495	-0.2099	
	23	-0.1091	-0.1960	-0.0833	-0.1837	
	24	-0.1623	-0.2091	-0.2030	-0.1967	
	25	-0.0956	-0.1557	-0.2029	-0.2367	
	Min	-0.1623	-0.2091	-0.2030	-0.2367	
	Max	-0.0956	-0.1290	-0.0833	-0.1837	
	Average	-0.1196	-0.1718	-0.1683	-0.2047	

