

HIGH DOSE RADIATION TEST REPORT AD9176S-CSH

November 2022

Radiation Test Report

Product:	AD9176
Gamma:	0, 100k
Gamma Source:	Co60/TM1019 Condition A
Dose Rate:	92 Rad(Si)/s
Facilities:	VPT RAD
Tested:	10/26/22

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		Leakage_High_CSb (uA)		Leakage_High_GPIO (uA)		Leakage_High_GPIO1 (uA)	
	SN	PRE	POST	PRE	POST	PRE	POST
CTRL	255	-0.000428	0.000261	-0.000559	-0.000559	-0.000210	0.000020
100k	23	-0.000351	-0.000504	-0.000329	-0.000406	0.000096	0.000403
	212	-0.000122	0.000414	-0.000329	-0.000789	-0.000133	0.000403
	213	0.000108	-0.000428	-0.000483	0.000283	-0.000363	0.000939
	227	-0.000504	0.000414	-0.000406	0.000054	0.000096	0.000173
	229	-0.000351	-0.000275	0.000207	-0.000023	-0.000057	0.000326
	231	-0.000428	0.000031	-0.000253	0.000130	0.000556	-0.000057
	239	-0.000581	0.000108	-0.000942	-0.000865	0.000862	0.000326
	248	-0.000428	-0.000275	0.000054	-0.000253	0.000479	0.001000
	256	-0.000198	0.000337	-0.000100	0.000360	0.000020	0.000786
	Min	-0.000581	-0.000504	-0.000942	-0.000865	-0.000363	-0.000057
	Max	0.000108	0.000414	0.000207	0.000360	0.000862	0.001000
	Mean	-0.000317	-0.000020	-0.000287	-0.000168	0.000173	0.000478
	Std. Dev	0.000213	0.000363	0.000332	0.000444	0.000385	0.000356
	Mean - 3 Sigma	-0.000957	-0.001108	-0.001282	-0.001500	-0.000981	-0.000591
	Mean + 3 Sigma	0.000323	0.001069	0.000709	0.001164	0.001327	0.001547

		Leakage_High_GPIO2 (uA)		Leakage_High_RESEtb (uA)		Leakage_High_SCLK (uA)	
	SN	PRE	POST	PRE	POST	PRE	POST
CTRL	255	-0.000181	0.000048	-0.000072	0.000158	0.000610	0.000687
100k	23	0.000966	0.000278	0.000158	0.000311	0.000151	0.000687
	212	0.000354	0.000354	0.000311	0.000540	0.000304	0.000304
	213	0.000736	0.001000	0.000081	-0.000148	0.000993	-0.000154
	227	0.000889	0.000583	0.000158	-0.000378	0.000075	0.000228
	229	0.000354	0.000889	-0.000301	0.000234	0.000763	0.000457
	231	-0.000028	0.000354	-0.000072	0.000234	0.000075	0.000075
	239	0.000660	0.000201	0.000005	-0.000301	-0.000460	-0.000384
	248	0.000430	0.000430	0.000081	0.000234	0.000151	0.000304
	256	0.000660	0.000278	0.000617	0.000158	-0.000231	0.000534
	Min	-0.000028	0.000201	-0.000301	-0.000378	-0.000460	-0.000384
	Max	0.000966	0.001000	0.000617	0.000540	0.000993	0.000687
	Mean	0.000558	0.000485	0.000115	0.000098	0.000202	0.000228
	Std. Dev	0.000311	0.000283	0.000254	0.000305	0.000449	0.000338
	Mean - 3 Sigma	-0.000374	-0.000365	-0.000647	-0.000818	-0.001145	-0.000785
	Mean + 3 Sigma	0.001489	0.001335	0.000877	0.001015	0.001550	0.001241

		Leakage_High_SDI (uA)		Leakage_High_TXEnable0 (uA)		Leakage_High_TxEnable1 (uA)	
	SN	PRE	POST	PRE	POST	PRE	POST
CTRL	255	-0.000347	0.000111	-0.000279	-0.000203	-0.001000	-0.000422
100k	23	0.000034	0.000493	-0.001000	-0.000586	-0.001000	-0.000346
	212	-0.000195	0.000187	-0.000203	-0.000049	-0.000422	-0.001000
	213	-0.000118	0.000263	-0.000126	-0.000203	-0.000576	-0.001000
	227	-0.000195	-0.000729	-0.000433	-0.000509	-0.000499	-0.000806
	229	-0.000195	-0.000118	0.000028	-0.000356	-0.000806	-0.001000
	231	0.000034	-0.000195	-0.000279	0.000181	-0.000422	-0.000882
	239	0.000416	-0.000500	-0.000663	0.000028	-0.000806	-0.000422
	248	-0.000271	0.000187	-0.000126	-0.000049	-0.000729	-0.000652
	256	-0.000118	-0.000424	0.000104	0.000181	-0.000652	-0.000499
	Min	-0.000271	-0.000729	-0.001000	-0.000586	-0.001000	-0.001000
	Max	0.000416	0.000493	0.000104	0.000181	-0.000422	-0.000346
	Mean	-0.000067	-0.000093	-0.000300	-0.000151	-0.000657	-0.000734
	Std. Dev	0.000209	0.000406	0.000350	0.000282	0.000196	0.000262
	Mean - 3 Sigma	-0.000695	-0.001311	-0.001350	-0.000997	-0.001246	-0.001520
	Mean + 3 Sigma	0.000560	0.001125	0.000751	0.000694	-0.000068	0.000052

	SN	Leakage_Low_Dig_CSB (uA)		Leakage_Low_GPI00 (uA)		Leakage_Low_GPI01 (uA)	
		PRE	POST	PRE	POST	PRE	POST
CTRL	255	-0.000275	-0.001000	-0.000942	-0.000329	-0.000363	0.000096
100k	23	-0.000122	-0.000275	-0.000789	-0.000636	0.000096	-0.000210
	212	-0.000810	-0.000963	-0.000483	-0.001000	-0.000133	-0.000440
	213	-0.000657	-0.001000	-0.000559	-0.000942	0.000403	0.000096
	227	-0.000351	-0.000810	-0.001000	-0.000483	-0.000286	-0.000133
	229	-0.001000	-0.000198	-0.000942	-0.001000	0.000173	0.000403
	231	-0.001000	-0.000887	-0.000559	-0.000023	0.000326	0.000096
	239	-0.001000	-0.000581	-0.000483	-0.001000	0.000479	0.000096
	248	-0.000581	-0.000657	-0.001000	-0.000100	-0.000286	0.000556
	256	-0.000275	-0.000657	-0.001000	-0.001000	-0.000286	0.000020
	Min	-0.001000	-0.001000	-0.001000	-0.001000	-0.000286	-0.000440
	Max	-0.000122	-0.000198	-0.000483	-0.000023	0.000479	0.000556
	Mean	-0.000644	-0.000670	-0.000757	-0.000687	0.000054	0.000054
	Std. Dev	0.000337	0.000285	0.000235	0.000401	0.000311	0.000302
	Mean - 3 Sigma	-0.001654	-0.001524	-0.001462	-0.001890	-0.000880	-0.000851
	Mean + 3 Sigma	0.000366	0.000185	-0.000052	0.000516	0.000988	0.000959

	SN	Leakage_Low_GPI02 (uA)		Leakage_Low_ResetB (uA)		Leakage_Low_SCLK (uA)	
		PRE	POST	PRE	POST	PRE	POST
CTRL	255	-0.000258	-0.000640	-0.000760	-0.000454	-0.000078	-0.000154
100k	23	-0.000105	0.000278	-0.000301	-0.000913	-0.000537	0.000075
	212	-0.000028	-0.000334	0.000158	-0.000378	-0.000690	0.000151
	213	-0.000487	-0.000105	-0.000301	-0.000607	-0.000307	0.000075
	227	-0.000869	-0.000640	0.000081	-0.000378	-0.000384	0.000304
	229	-0.000411	0.000048	0.000234	-0.000837	-0.000384	0.000763
	231	-0.000028	0.000125	-0.000531	-0.000378	-0.000231	-0.000231
	239	-0.000181	-0.000258	-0.000531	-0.000607	-0.000154	-0.000537
	248	-0.000334	0.000278	-0.000607	-0.000301	-0.000384	-0.000460
	256	-0.000716	-0.000028	-0.000913	-0.001000	-0.000843	0.000075
	Min	-0.000869	-0.000640	-0.000913	-0.001000	-0.000843	-0.000537
	Max	-0.000028	0.000278	0.000234	-0.000301	-0.000154	0.000763
	Mean	-0.000351	-0.000071	-0.000301	-0.000600	-0.000435	0.000024
	Std. Dev	0.000300	0.000301	0.000390	0.000263	0.000220	0.000397
	Mean - 3 Sigma	-0.001252	-0.000975	-0.001472	-0.001388	-0.001094	-0.001168
	Mean + 3 Sigma	0.000550	0.000833	0.000869	0.000188	0.000224	0.001216

	SN	Leakage_Low_SDI (uA)		Leakage_Low_TxEnable0 (uA)		Leakage_Low_TxEnable1 (uA)	
		PRE	POST	PRE	POST	PRE	POST
CTRL	255	-0.000347	-0.000577	-0.000126	-0.000433	-0.001000	-0.002000
100k	23	-0.001000	-0.000424	-0.000356	-0.000509	-0.001000	-0.001000
	212	-0.000347	-0.000424	-0.000509	-0.000433	-0.001000	-0.001000
	213	-0.000347	-0.000729	-0.000816	-0.000509	-0.002000	-0.001000
	227	-0.000271	-0.000347	-0.000433	-0.000586	-0.001000	-0.001000
	229	-0.000653	-0.000195	-0.000970	-0.000509	-0.001000	-0.001000
	231	-0.000729	-0.000424	-0.000509	-0.001000	-0.001000	-0.001000
	239	-0.000500	-0.000042	-0.001000	-0.000203	-0.001000	-0.002000
	248	-0.001000	0.000111	-0.000816	-0.000663	-0.001000	-0.001000
	256	-0.000882	-0.000424	-0.000739	-0.000739	-0.002000	-0.001000
	Min	-0.001000	-0.000729	-0.001000	-0.001000	-0.002000	-0.002000
	Max	-0.000271	0.000111	-0.000356	-0.000203	-0.001000	-0.001000
	Mean	-0.000637	-0.000322	-0.000683	-0.000572	-0.001222	-0.001111
	Std. Dev	0.000286	0.000247	0.000238	0.000220	0.000441	0.000333
	Mean - 3 Sigma	-0.001494	-0.001064	-0.001396	-0.001233	-0.002545	-0.002111
	Mean + 3 Sigma	0.000220	0.000420	0.000029	0.000088	0.000101	-0.000111

	SN	CLK_P_Common Mode (mV)		CLK_N_Common Mode (mV)		SYSREFP_Common Mode (mV)	
		PRE	POST	PRE	POST	PRE	POST
CTRL	255	474.71	473.79	475.02	473.95	884.10	882.43
100k	23	488.55	484.90	488.57	485.07	889.43	887.76
	212	517.16	515.03	517.51	515.07	886.08	883.95
	213	472.88	470.75	473.34	471.06	884.10	881.97
	227	494.94	494.64	495.27	494.66	883.95	887.30
	229	520.51	518.38	520.70	518.42	886.54	886.23
	231	493.88	496.62	493.75	497.10	871.17	881.21
	239	522.18	518.99	522.38	519.33	886.23	885.02
	248	546.83	543.49	546.90	543.39	888.21	885.93
	256	476.53	475.92	476.85	476.08	888.67	886.23
	Min	472.880	470.750	473.343	471.058	871.171	881.213
	Max	546.833	543.485	546.896	543.394	889.429	887.755
	Mean	503.719	502.079	503.918	502.243	884.932	885.067
	Std. Dev	24.383	23.663	24.330	23.578	5.495	2.273
	Mean - 3 Sigma	430.570	431.089	430.927	431.510	868.447	878.247
Mean + 3 Sigma	576.868	573.069	576.909	572.977	901.417	891.887	

	SN	SYSREFN_Common Mode (mV)		CLK_N_LkgHI_RcvOn (uA)		CLK_P_LkgHI_RcvOn (uA)	
		PRE	POST	PRE	POST	PRE	POST
CTRL	255	883.61	881.79	4.38	4.48	1.52	1.40
100k	23	888.94	887.27	3.19	4.42	2.81	1.21
	212	885.44	883.61	4.38	2.87	2.00	2.87
	213	883.61	881.33	4.33	4.26	2.48	2.10
	227	883.31	886.66	4.72	3.85	1.17	2.47
	229	886.81	885.90	3.66	4.38	2.71	1.21
	231	870.67	880.57	2.80	2.84	2.82	3.47
	239	885.90	884.68	4.08	3.89	1.20	1.16
	248	887.57	885.14	5.18	3.57	0.87	1.99
	256	888.33	885.75	4.33	3.15	2.16	2.80
	Min	870.671	880.568	2.801	2.839	0.867	1.157
	Max	888.943	887.268	5.181	4.418	2.820	3.469
	Mean	884.511	884.544	4.075	3.692	2.024	2.140
	Std. Dev	5.540	2.306	0.746	0.622	0.766	0.833
	Mean - 3 Sigma	867.891	877.626	1.837	1.826	-0.273	-0.358
Mean + 3 Sigma	901.130	891.463	6.312	5.559	4.322	4.639	

	SN	SYSREFN_LkgHI_RcvOn (uA)		SYSREFP_LkgHI_RcvOn (uA)		CLK_N_LkgLO_RcvOn (uA)	
		PRE	POST	PRE	POST	PRE	POST
CTRL	255	123.91	123.90	121.81	122.69	-6.43	-6.88
100k	23	121.97	122.44	120.49	120.53	-6.47	-5.93
	212	124.87	126.53	124.72	122.50	-6.39	-7.16
	213	122.41	125.39	123.01	121.63	-6.61	-6.79
	227	121.57	123.08	123.25	120.79	-6.04	-7.25
	229	125.82	125.49	121.46	122.12	-8.16	-6.71
	231	127.56	124.63	121.79	121.70	-7.03	-7.58
	239	124.32	125.17	123.02	121.79	-6.21	-6.56
	248	123.19	125.81	121.75	119.97	-5.94	-6.85
	256	122.22	126.27	122.27	118.64	-7.01	-7.67
	Min	121.567	122.435	120.493	118.644	-8.155	-7.674
	Max	127.561	126.525	124.715	122.501	-5.935	-5.927
	Mean	123.771	124.977	122.417	121.075	-6.651	-6.944
	Std. Dev	2.024	1.389	1.233	1.217	0.682	0.542
	Mean - 3 Sigma	117.699	120.809	118.718	117.423	-8.696	-8.571
Mean + 3 Sigma	129.844	129.145	126.116	124.727	-4.606	-5.317	

	SN	CLK_P_LkgLO_RcvOn (uA)		SYSREFN_LkgLO_RcvOn (uA)		SYSREFP_LkgLO_RcvOn (uA)	
		PRE	POST	PRE	POST	PRE	POST
CTRL	255	0.73	1.23	-15.62	-18.43	-13.55	-13.79
100k	23	1.09	0.29	-16.51	-16.66	-11.37	-14.19
	212	0.27	1.12	-19.50	-18.48	-13.17	-16.77
	213	1.17	1.44	-18.36	-18.79	-11.49	-13.03
	227	0.77	1.39	-17.16	-16.56	-12.02	-13.95
	229	1.77	0.30	-17.88	-18.19	-15.16	-16.96
	231	1.36	2.18	-16.29	-16.54	-14.98	-16.06
	239	0.03	1.26	-17.57	-16.86	-13.27	-16.83
	248	-0.28	1.01	-14.94	-15.14	-14.12	-16.41
	256	1.59	2.17	-16.65	-14.81	-12.38	-14.32
	Min	-0.277	0.288	-19.498	-18.790	-15.161	-16.964
	Max	1.767	2.179	-14.944	-14.807	-11.372	-13.031
	Mean	0.862	1.240	-17.207	-16.891	-13.106	-15.391
	Std. Dev	0.716	0.677	1.321	1.392	1.419	1.508
	Mean - 3 Sigma	-1.287	-0.790	-21.169	-21.067	-17.364	-19.916
Mean + 3 Sigma	3.011	3.270	-13.245	-12.716	-8.848	-10.867	

	SN	ISET_ExtR_V (mV)		Int_VREF (mV)		DAC0_Gain_Error_N (%)	
		PRE	POST	PRE	POST	PRE	POST
CTRL	255	484.58	478.35	496.44	489.63	1.17	1.09
100k	23	484.46	477.72	495.02	487.82	3.29	3.19
	212	484.80	477.71	495.96	487.92	2.42	2.39
	213	484.33	477.61	496.29	489.23	3.07	3.03
	227	484.30	477.23	495.78	487.83	2.03	1.50
	229	484.96	477.85	495.78	487.87	2.11	1.96
	231	484.98	478.60	494.20	487.63	3.16	3.46
	239	484.73	477.30	495.11	487.12	4.12	3.56
	248	484.43	476.97	495.90	487.92	0.70	0.17
	256	483.65	483.76	495.22	495.50	1.30	1.72
	Min	483.652	476.968	494.203	487.116	0.704	0.172
	Max	484.979	483.760	496.292	495.496	4.123	3.562
	Mean	484.517	478.305	495.473	488.759	2.467	2.331
	Std. Dev	0.414	2.097	0.640	2.587	1.065	1.111
	Mean - 3 Sigma	483.273	472.013	493.553	480.999	-0.727	-1.003
Mean + 3 Sigma	485.760	484.597	497.393	496.520	5.660	5.665	

	SN	DAC1_Gain_Error_N (%)		IQMismatch Error_N (%)		DAC0_Gain_Error_P (%)	
		PRE	POST	PRE	POST	PRE	POST
CTRL	255	3.60	3.75	-2.35	-2.56	1.30	1.65
100k	23	2.57	2.94	0.69	0.24	3.47	3.33
	212	3.50	3.46	-1.05	-1.03	2.58	2.54
	213	2.30	2.13	0.76	0.87	3.20	3.20
	227	0.39	-0.10	1.63	1.60	2.17	1.68
	229	1.29	1.60	0.81	0.35	2.27	2.11
	231	4.57	4.85	-1.35	-1.32	3.35	3.65
	239	3.75	3.24	0.36	0.31	4.29	3.80
	248	0.69	0.20	0.02	-0.03	0.88	0.35
	256	1.20	1.40	0.10	0.32	1.44	1.90
	Min	0.391	-0.101	-1.350	-1.320	0.884	0.354
	Max	4.573	4.846	1.632	1.601	4.286	3.796
	Mean	2.250	2.191	0.220	0.146	2.626	2.506
	Std. Dev	1.468	1.600	0.936	0.888	1.066	1.117
	Mean - 3 Sigma	-2.155	-2.610	-2.588	-2.519	-0.572	-0.845
Mean + 3 Sigma	6.656	6.992	3.027	2.811	5.824	5.857	

	SN	DAC1_Gain_Error_P (%)		IQMismatch Error_P (%)		DAC0_ISB_INL_MAX_ExtCal (LSB)	
		PRE	POST	PRE	POST	PRE	POST
CTRL	255	3.47	3.69	-2.10	-1.97	0.127	0.427
100k	23	2.26	2.81	1.18	0.51	0	0.337
	212	3.32	3.28	-0.72	-0.72	1.601	1.499
	213	2.09	1.99	1.08	1.19	1.4	1.315
	227	0.21	-0.48	1.96	2.16	0.339	1.48
	229	1.11	1.45	1.14	0.65	0.722	1.124
	231	4.27	4.63	-0.88	-0.94	0	0
	239	3.53	3.07	0.74	0.70	0	0
	248	0.45	0.08	0.43	0.27	0	0
	256	0.99	1.42	0.45	0.48	0	0
	Min	0.205	-0.476	-0.882	-0.937	0.000	0.000
	Max	4.265	4.628	1.960	2.164	1.601	1.499
	Mean	2.025	2.027	0.597	0.479	0.451	0.639
	Std. Dev	1.445	1.612	0.916	0.929	0.645	0.695
	Mean - 3 Sigma	-2.311	-2.810	-2.151	-2.307	-1.483	-1.445
	Mean + 3 Sigma	6.361	6.864	3.345	3.265	2.386	2.724

	SN	DAC0_ISB_INL_MIN_ExtCal (LSB)		DAC1_ISB_INL_MAX_ExtCal (LSB)		DAC1_ISB_INL_MIN_Ext_Cal (LSB)	
		PRE	POST	PRE	POST	PRE	POST
CTRL	255	-0.725	0	0	0	-2.584	-1.864
100k	23	-1.81	-0.64	0.00	0.00	-2.63	-3.96
	212	0.00	0.00	1.15	1.24	0.00	0.00
	213	0.00	0.00	0.04	0.02	-0.39	-0.78
	227	-0.11	0.00	0.00	0.00	-0.94	-1.30
	229	0.00	-0.05	0.35	0.18	0.00	-0.25
	231	-2.89	-3.33	0.27	0.51	0.00	0.00
	239	-2.04	-3.13	0.63	0.43	-0.20	0.00
	248	-1.89	-2.45	1.37	1.12	0.00	0.00
	256	-1.29	-1.16	1.97	1.63	0.00	0.00
	Min	-2.891	-3.330	0.000	0.000	-2.626	-3.955
	Max	0.000	0.000	1.972	1.627	0.000	0.000
	Mean	-1.115	-1.195	0.641	0.570	-0.461	-0.697
	Std. Dev	1.112	1.404	0.704	0.611	0.870	1.304
	Mean - 3 Sigma	-4.450	-5.408	-1.470	-1.264	-3.070	-4.610
	Mean + 3 Sigma	2.220	3.017	2.752	2.404	2.148	3.215

	SN	DAC0_LSB_INL_MAX_Ext_Cal (LSB)		DAC0_LSB_INL_MIN_Ext_Cal (LSB)		DAC1_LSB_INL_MAX_Ext_Cal (LSB)	
		PRE	POST	PRE	POST	PRE	POST
CTRL	255	0.272	0.226	-0.576	-0.472	0.26	0.251
100k	23	0.19	0.24	-0.31	-0.08	0.20	0.22
	212	0.23	0.23	-0.30	-0.20	0.23	0.23
	213	0.26	0.25	-0.63	-0.41	0.22	0.22
	227	0.29	0.26	-0.56	-0.30	0.24	0.21
	229	0.26	0.23	-0.38	-0.52	0.23	0.24
	231	0.25	0.27	-0.50	-0.67	0.23	0.23
	239	0.21	0.24	-1.22	-0.98	0.25	0.24
	248	0.20	0.20	-0.52	-1.05	0.24	0.23
	256	0.25	0.24	-0.74	-0.68	0.25	0.24
	Min	0.189	0.202	-1.220	-1.050	0.202	0.212
	Max	0.293	0.270	-0.304	-0.081	0.248	0.237
	Mean	0.237	0.240	-0.573	-0.542	0.231	0.228
	Std. Dev	0.035	0.020	0.282	0.334	0.014	0.009
	Mean - 3 Sigma	0.133	0.181	-1.418	-1.545	0.188	0.201
	Mean + 3 Sigma	0.341	0.299	0.272	0.460	0.274	0.255

		DAC1_LSB_INL_MIN_Ext_Cal (LSB)		DAC0_INL_MAX_Ext_Cal (LSB)		DAC0_INL_MIN_Ext_Cal (LSB)	
	SN	PRE	POST	PRE	POST	PRE	POST
CTRL	255	-0.59	-0.62	1.86	1.23	-1.86	-2.22
100k	23	-0.41	-0.67	2.59	1.32	-3.57	-2.02
	212	-0.44	-0.33	2.27	1.97	-1.86	-1.97
	213	-0.74	-0.21	2.20	1.85	-1.92	-2.30
	227	-0.86	-0.89	1.18	2.00	-1.36	-2.64
	229	-0.28	-0.44	1.32	1.59	-1.98	-2.15
	231	-0.76	-0.62	4.00	4.64	-4.00	-4.64
	239	-0.25	-0.17	4.00	4.73	-4.08	-4.73
	248	-0.23	-0.31	3.00	4.51	-3.43	-4.51
	256	-0.14	-0.12	2.90	2.42	-3.04	-2.35
	Min	-0.856	-0.885	1.176	1.316	-4.077	-4.732
	Max	-0.135	-0.121	4.004	4.732	-1.361	-1.971
	Mean	-0.456	-0.418	2.607	2.781	-2.804	-3.035
	Std. Dev	0.265	0.259	1.008	1.418	1.032	1.212
	Mean - 3 Sigma	-1.251	-1.194	-0.416	-1.473	-5.899	-6.670
	Mean + 3 Sigma	0.339	0.358	5.630	7.035	0.291	0.600

		DAC0_DNL_MAX_Ext_Cal (LSB)		DAC0_DNL_MIN_Ext_Cal (LSB)		DAC1_INL_MAX_Ext_Cal (LSB)	
	SN	PRE	POST	PRE	POST	PRE	POST
CTRL	255	1.39	0.53	-0.70	-0.84	3.63	2.77
100k	23	2.66	0.21	-0.41	-1.29	3.45	5.05
	212	0.76	0.52	-1.33	-1.98	1.72	3.77
	213	1.11	0.73	-0.88	-1.21	1.64	1.30
	227	0.64	0.55	-0.72	-1.59	2.11	3.20
	229	0.40	0.96	-0.63	-0.80	0.98	1.32
	231	3.79	4.60	-0.58	-0.59	2.17	1.83
	239	3.97	4.72	-0.89	-0.81	1.16	1.67
	248	2.91	4.52	-0.49	-0.50	1.86	1.69
	256	2.66	2.03	-0.63	-0.70	2.65	2.25
	Min	0.397	0.212	-1.329	-1.981	0.981	1.303
	Max	3.973	4.717	-0.414	-0.499	3.445	5.052
	Mean	2.101	2.092	-0.729	-1.052	1.970	2.454
	Std. Dev	1.390	1.956	0.275	0.499	0.751	1.289
	Mean - 3 Sigma	-2.069	-3.776	-1.554	-2.550	-0.284	-1.413
	Mean + 3 Sigma	6.271	7.960	0.096	0.445	4.224	6.321

		DAC1_INL_MIN_Ext_Cal (LSB)		DAC1_DNL_MAX_Ext_Cal (LSB)		DAC1_DNL_MIN_Ext_Cal (LSB)	
	SN	PRE	POST	PRE	POST	PRE	POST
CTRL	255	-4.49	-3.82	3.46	2.56	-0.65	-0.89
100k	23	-4.24	-5.05	3.45	5.07	-0.48	-0.67
	212	-2.02	-1.79	0.82	0.43	-0.82	-1.46
	213	-3.94	-1.76	1.81	1.04	-0.62	-0.55
	227	-2.42	-5.55	1.80	3.43	-0.70	-0.49
	229	-1.29	-2.23	0.70	0.95	-0.53	-0.55
	231	-1.33	-1.75	1.11	0.89	-0.64	-0.59
	239	-2.52	-1.27	0.37	0.21	-0.96	-1.11
	248	-1.79	-2.67	0.61	0.44	-1.56	-1.45
	256	-2.65	-2.66	0.24	0.22	-2.67	-2.23
	Min	-4.239	-5.547	0.235	0.213	-2.667	-2.226
	Max	-1.291	-1.273	3.445	5.071	-0.475	-0.492
	Mean	-2.465	-2.749	1.211	1.410	-0.996	-1.012
	Std. Dev	1.042	1.520	1.009	1.690	0.707	0.598
	Mean - 3 Sigma	-5.590	-7.308	-1.815	-3.659	-3.116	-2.806
	Mean + 3 Sigma	0.659	1.810	4.238	6.479	1.124	0.782

		I_SVDD_1V_12GHz (mA)		I_DVDD_1V_12GHz (mA)		I_SVDD_DVDD_1V_12GHz (mA)	
	SN	PRE	POST	PRE	POST	PRE	POST
CTRL	255	287.11	284.19	1202.62	1149.40	1489.73	1433.58
100k	23	278.67	276.64	1199.27	1178.73	1477.94	1455.37
	212	280.25	278.96	1218.43	1197.43	1498.68	1476.39
	213	283.08	281.87	1214.70	1203.87	1497.78	1485.74
	227	282.41	278.29	1229.81	1225.70	1512.21	1503.98
	229	282.26	278.64	1210.64	1202.13	1492.90	1480.76
	231	292.12	284.44	1230.14	1216.92	1522.26	1501.36
	239	278.07	276.16	1202.54	1205.59	1480.61	1481.75
	248	281.75	280.11	1207.81	1201.87	1489.56	1481.98
	256	277.92	276.23	1212.29	1199.20	1490.21	1475.43
	Min	277.921	276.160	1199.270	1178.730	1477.940	1455.370
	Max	292.115	284.444	1230.140	1225.700	1522.260	1503.980
	Mean	281.835	279.038	1213.959	1203.493	1495.794	1482.529
	Std. Dev	4.327	2.763	10.790	12.995	14.186	14.382
	Mean - 3 Sigma	268.854	270.750	1181.589	1164.510	1453.236	1439.382
Mean + 3 Sigma	294.816	287.326	1246.329	1242.477	1538.353	1525.676	

		I_AVDD_1V_12GHz (mA)		I_AVDD_1.8V_12GHz (mA)		I_DVDD_1.8V_12GHz (mA)	
	SN	PRE	POST	PRE	POST	PRE	POST
CTRL	255	732.59	718.11	109.24	107.51	28.06	27.64
100k	23	721.42	721.86	109.15	107.17	27.87	27.61
	212	717.23	718.27	110.43	108.13	28.14	27.93
	213	730.35	731.50	109.87	107.79	28.29	28.09
	227	729.25	729.26	108.04	105.62	28.50	28.04
	229	715.71	716.05	109.66	107.50	28.36	28.03
	231	738.97	728.94	110.34	108.41	29.12	28.40
	239	713.72	714.69	110.49	108.05	27.89	27.64
	248	717.89	717.69	107.39	105.03	27.80	27.66
	256	715.32	715.09	107.46	107.57	27.51	27.58
	Min	713.718	714.687	107.394	105.029	27.508	27.578
	Max	738.970	731.504	110.493	108.407	29.123	28.399
	Mean	722.206	721.483	109.205	107.251	28.164	27.886
	Std. Dev	8.679	6.690	1.266	1.161	0.477	0.282
	Mean - 3 Sigma	696.168	701.413	105.408	103.769	26.734	27.040
Mean + 3 Sigma	748.243	741.552	113.002	110.732	29.594	28.732	

		Fund Amp DAC0 (dBm)		2nd Harm. DAC0 (dBc)		3rd Harm. DAC0 (dBc)	
	SN	PRE	POST	PRE	POST	PRE	POST
CTRL	255	-16.01	-15.98	-89.42	-87.57	-85.71	-81.75
100k	23	-15.79	-15.78	-81.14	-81.16	-81.52	-84.82
	212	-15.86	-15.84	-82.18	-82.60	-80.28	-82.95
	213	-15.78	-15.84	-86.81	-87.62	-82.66	-84.05
	227	-15.92	-15.95	-82.96	-83.04	-83.02	-81.01
	229	-15.86	-15.86	-93.71	-91.92	-79.56	-81.03
	231	-15.67	-15.81	-76.19	-76.27	-85.91	-84.25
	239	-15.68	-15.80	-78.84	-78.69	-81.71	-84.31
	248	-16.03	-16.07	-79.87	-79.45	-83.07	-82.03
	256	-16.01	-15.84	-80.22	-80.54	-82.13	-82.16
	Min	-16.034	-16.071	-93.707	-91.916	-85.909	-84.819
	Max	-15.667	-15.777	-76.193	-76.274	-79.564	-81.010
	Mean	-15.844	-15.866	-82.434	-82.364	-82.208	-82.955
	Std. Dev	0.129	0.091	5.142	4.785	1.828	1.464
	Mean - 3 Sigma	-16.231	-16.138	-97.862	-96.720	-87.692	-87.346
Mean + 3 Sigma	-15.457	-15.593	-67.007	-68.008	-76.723	-78.563	

	SN	4th Harm. DAC0 (dBc)		5th Harm. DAC0 (dBc)		Fund Amp DAC1 (dBm)	
		PRE	POST	PRE	POST	PRE	POST
CTRL	255	-91.99	-87.09	-91.28	-92.22	-15.69	-15.68
100k	23	-96.45	-89.87	-95.68	-95.79	-15.73	-15.70
	212	-88.39	-86.15	-91.47	-101.44	-15.64	-15.64
	213	-99.81	-99.50	-97.46	-93.23	-15.77	-15.81
	227	-88.12	-87.32	-95.52	-94.80	-15.93	-16.01
	229	-103.55	-92.02	-89.03	-95.14	-15.81	-15.79
	231	-92.20	-105.13	-93.75	-104.83	-15.50	-15.58
	239	-96.92	-99.22	-94.89	-87.45	-15.61	-15.74
	248	-92.99	-97.66	-91.88	-90.71	-15.93	-15.97
	256	-94.67	-95.26	-90.80	-90.46	-15.88	-15.74
	Min	-103.552	-105.127	-97.464	-104.831	-15.932	-16.006
	Max	-88.121	-86.153	-89.027	-87.448	-15.497	-15.581
	Mean	-94.790	-94.681	-93.386	-94.871	-15.756	-15.777
	Std. Dev	5.057	6.317	2.749	5.453	0.150	0.140
	Mean - 3 Sigma	-109.962	-113.632	-101.633	-111.230	-16.207	-16.197
	Mean + 3 Sigma	-79.618	-75.729	-85.139	-78.512	-15.305	-15.357

	SN	2nd Harm. DAC1 (dBc)		3rd Harm. DAC1 (dBc)		4th Harm. DAC1 (dBc)	
		PRE	POST	PRE	POST	PRE	POST
CTRL	255	-99.25	-100.25	-84.47	-83.91	-88.50	-89.21
100k	23	-82.98	-83.51	-86.20	-89.06	-84.04	-85.98
	212	-81.76	-80.79	-81.03	-79.69	-89.87	-104.93
	213	-77.06	-77.44	-82.11	-80.43	-99.87	-110.10
	227	-85.49	-88.29	-81.50	-82.99	-90.39	-91.86
	229	-92.86	-91.36	-80.93	-80.32	-102.31	-98.99
	231	-78.33	-77.89	-84.90	-84.94	-90.67	-90.04
	239	-86.12	-86.03	-83.80	-82.17	-116.24	-99.61
	248	-81.92	-81.78	-82.06	-81.93	-88.77	-88.02
	256	-80.60	-80.36	-83.72	-84.13	-94.61	-101.51
	Min	-92.861	-91.361	-86.203	-89.055	-116.235	-110.102
	Max	-77.059	-77.441	-80.934	-79.691	-84.037	-85.977
	Mean	-83.013	-83.049	-82.917	-82.850	-95.195	-96.782
	Std. Dev	4.727	4.713	1.838	2.917	9.704	8.232
	Mean - 3 Sigma	-97.195	-97.188	-88.431	-91.602	-124.307	-121.479
	Mean + 3 Sigma	-68.832	-68.911	-77.403	-74.099	-66.083	-72.085

	SN	5th Harm. DAC1 (dBc)		DAC0_1.8432GHz_Spur (dBm)		DAC1_1.8432GHz_Spur (dBm)	
		PRE	POST	PRE	POST	PRE	POST
CTRL	255	-95.12	-102.20	-111.08	-113.49	-107.60	-108.62
100k	23	-103.07	-107.69	-111.71	-120.31	-111.78	-103.88
	212	-90.51	-96.41	-112.16	-107.35	-103.83	-101.99
	213	-91.38	-97.04	-116.01	-113.79	-110.86	-106.44
	227	-91.49	-91.01	-107.28	-122.40	-104.57	-120.72
	229	-98.60	-98.30	-115.04	-108.58	-105.45	-98.99
	231	-92.33	-97.40	-108.11	-110.50	-109.76	-105.88
	239	-89.76	-90.34	-117.11	-109.28	-113.26	-104.38
	248	-92.05	-92.67	-111.65	-124.28	-107.90	-108.76
	256	-91.73	-87.25	-114.40	-115.93	-106.19	-102.82
	Min	-103.069	-107.692	-117.114	-124.282	-113.260	-120.721
	Max	-89.763	-87.252	-107.278	-107.349	-103.828	-98.994
	Mean	-93.436	-95.346	-112.607	-114.714	-108.178	-105.984
	Std. Dev	4.410	5.978	3.382	6.358	3.389	6.195
	Mean - 3 Sigma	-106.666	-113.281	-122.753	-133.788	-118.344	-124.568
	Mean + 3 Sigma	-80.207	-77.411	-102.461	-95.639	-98.011	-87.399

		I_SVDD_1V_12GHz_TxEnb (mA)		I_DVDD_1V_12GHz_TxEnb (mA)		I_SVDD_DVDD_12GHz_TxEnb (mA)	
	SN	PRE	POST	PRE	POST	PRE	POST
CTRL	255	287.99	284.51	556.30	544.14	844.29	828.65
100k	23	279.54	277.21	556.34	550.30	835.88	827.51
	212	281.05	279.73	558.15	557.72	839.20	837.44
	213	283.87	282.44	558.15	558.38	842.02	840.82
	227	282.85	278.94	564.99	566.30	847.84	845.24
	229	282.80	279.28	554.05	554.32	836.85	833.60
	231	293.01	285.34	568.84	557.25	861.85	842.59
	239	278.81	276.88	552.93	559.07	831.73	835.96
	248	282.38	280.74	558.40	558.37	840.78	839.10
	256	278.57	276.80	560.07	558.52	838.64	835.32
	Min	278.570	276.800	552.928	550.304	831.733	827.513
	Max	293.012	285.338	568.837	566.295	861.849	845.238
	Mean	282.543	279.706	559.100	557.803	841.643	837.509
	Std. Dev	4.367	2.821	5.049	4.236	8.782	5.261
	Mean - 3 Sigma	269.443	271.244	543.953	545.094	815.297	821.725
	Mean + 3 Sigma	295.643	288.168	574.247	570.512	867.988	853.292

		I_AVDD_1V_12GHz_TxEnb (mA)		I_AVDD_1.8V_12GHz_TxEnb (mA)		I_DVDD_1.8V_12GHz_TxEnb (mA)	
	SN	PRE	POST	PRE	POST	PRE	POST
CTRL	255	733.87	719.13	109.20	107.47	28.56	28.36
100k	23	722.33	722.81	109.16	107.15	28.40	28.23
	212	718.00	719.13	110.41	108.11	28.73	28.55
	213	731.45	732.68	109.86	107.73	28.95	28.61
	227	729.98	730.25	107.97	105.59	29.14	28.57
	229	716.52	716.96	109.65	107.46	28.99	28.67
	231	740.27	730.20	110.34	108.33	29.68	28.96
	239	714.41	715.62	110.44	108.00	28.45	28.21
	248	718.81	718.59	107.36	105.00	28.38	28.27
	256	716.28	716.07	107.42	107.54	28.08	28.15
	Min	714.409	715.620	107.363	104.999	28.077	28.145
	Max	740.271	732.678	110.438	108.330	29.680	28.961
	Mean	723.117	722.479	109.179	107.211	28.757	28.469
	Std. Dev	8.818	6.792	1.273	1.153	0.490	0.271
	Mean - 3 Sigma	696.662	702.101	105.360	103.751	27.287	27.657
	Mean + 3 Sigma	749.572	742.856	112.998	110.672	30.227	29.281

		Power_SERDES_12.3GHz (W)		I_SVDD_1V_12.3GHz (mA)		I_DVDD_1V_12.3GHz (mA)	
	SN	PRE	POST	PRE	POST	PRE	POST
CTRL	255	2.56	2.48	498.87	491.38	1234.11	1182.37
100k	23	2.52	2.50	486.75	482.81	1216.47	1199.38
	212	2.54	2.51	488.65	485.90	1239.06	1218.17
	213	2.57	2.55	496.16	493.22	1246.16	1233.27
	227	2.55	2.55	490.48	484.32	1244.40	1252.20
	229	2.53	2.51	491.38	483.83	1233.01	1223.24
	231	2.59	2.56	505.01	494.78	1256.48	1245.02
	239	2.52	2.51	485.68	481.99	1223.09	1223.58
	248	2.54	2.52	491.98	489.86	1233.74	1221.05
	256	2.52	2.50	481.91	477.27	1228.83	1217.52
	Min	2.516	2.496	481.912	477.268	1216.470	1199.380
	Max	2.593	2.562	505.008	494.781	1256.480	1252.200
	Mean	2.542	2.524	490.888	485.998	1235.693	1225.937
	Std. Dev	0.026	0.024	6.695	5.636	12.325	15.735
	Mean - 3 Sigma	2.465	2.452	470.804	469.089	1198.718	1178.730
	Mean + 3 Sigma	2.619	2.596	510.972	502.907	1272.669	1273.143

		I_SVDD_DVDD_1V_12.3GHz (mA)		I_AVDD_1V_12.3GHz (mA)		I_AVDD_1.8V_12.3GHz (mA)	
	SN	PRE	POST	PRE	POST	PRE	POST
CTRL	255	1732.98	1673.76	704.66	689.48	107.20	104.71
100k	23	1703.22	1682.20	694.02	694.07	107.14	105.19
	212	1727.71	1704.06	687.65	688.16	108.53	106.37
	213	1742.32	1726.49	703.38	704.19	107.89	105.87
	227	1734.89	1736.51	698.75	699.36	106.02	103.76
	229	1724.38	1707.07	683.84	683.84	107.76	105.66
	231	1761.49	1739.81	708.34	702.26	108.40	106.45
	239	1708.77	1705.58	685.20	686.07	108.62	106.28
	248	1725.72	1710.90	690.12	689.31	105.44	103.13
	256	1710.74	1694.79	686.28	686.01	105.61	105.62
	Min	1703.220	1682.200	683.837	683.840	105.444	103.125
	Max	1761.490	1739.810	708.335	704.191	108.618	106.454
	Mean	1726.582	1711.934	693.064	692.587	107.268	105.368
	Std. Dev	18.221	19.033	8.689	7.657	1.275	1.176
	Mean - 3 Sigma	1671.918	1654.835	666.997	669.616	103.442	101.840
	Mean + 3 Sigma	1781.246	1769.034	719.130	715.557	111.093	108.897

		I_DVDD_1.8V_12.3GHz (mA)	
	SN	PRE	POST
CTRL	255	34.62	34.43
100k	23	34.65	34.34
	212	35.00	34.79
	213	35.04	34.81
	227	35.09	34.70
	229	35.19	34.88
	231	35.68	35.10
	239	34.77	34.37
	248	34.59	34.41
	256	34.29	34.34
	Min	34.289	34.338
	Max	35.682	35.100
	Mean	34.922	34.636
	Std. Dev	0.403	0.281
	Mean - 3 Sigma	33.713	33.792
	Mean + 3 Sigma	36.131	35.480





















