

HIGH DOSE RADIATION TEST REPORT RH5596S-CSH

November 2022

Generic



Radiation Test Report	
Product:	RH5596S
Gamma:	0,100k
Gamma Source:	Co60/TM1019 Condition A
Dose Rate:	91 Rad/s
Facilities:	VPT RAD
Tested:	11/15/22

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.

		ICC_EN_3V3_VCC_3V3 (mA)		ICC_EN_1V1_VCC_3V3 (mA)		ICC_EN_0V_VCC_3V3 (nA)
	SN	PRE	POST	PRE	POST	PRE
CTRL	39	30.474	30.435	30.558	30.518	4.269
Biased	1	29.829	29.888	29.909	29.970	4.391
	2	29.592	29.663	29.678	29.741	5.463
	3	30.028	30.129	30.107	30.209	3.795
	4	29.900	29.833	29.973	29.922	4.205
	5	29.602	29.691	29.675	29.767	3.516
	6	30.205	30.246	30.276	30.317	5.072
	7	30.285	30.254	30.370	30.328	3.945
	8	30.207	30.134	30.286	30.208	3.552
	9	30.732	30.720	30.814	30.796	4.839
	10	30.170	30.214	30.243	30.283	3.768
	Min	29.592	29.663	29.675	29.741	3.516
	Max	30.732	30.720	30.814	30.796	5.463
	Mean	30.0550	30.0772	30.1331	30.1541	4.2546
	Std. Dev	0.3441	0.3186	0.3447	0.3162	0.6728
	Mean - 3 Sigma	29.0228	29.1213	29.0991	29.2056	2.2362
	Mean + 3 Sigma	31.0872	31.0331	31.1671	31.1026	6.2730
UnBiased	11	29.923	29.801	29.999	29.875	4.073
	12	30.238	30.186	30.323	30.265	3.694
	13	30.353	30.210	30.433	30.276	4.494
	14	30.755	30.647	30.834	30.721	4.113
	15	30.135	30.101	30.213	30.176	4.593
	16	29.602	29.523	29.677	29.595	3.964
	17	29.880	29.895	29.951	29.983	3.708
	18	30.136	30.128	30.218	30.207	4.365
	19	29.356	29.284	29.431	29.356	4.831
	20	30.163	30.181	30.245	30.257	4.456
	Min	29.356	29.284	29.431	29.356	3.694
	Max	30.755	30.647	30.834	30.721	4.831
	Mean	30.0541	29.9956	30.1324	30.0711	4.2291
	Std. Dev	0.3914	0.3869	0.3938	0.3873	0.3802
	Mean - 3 Sigma	28.8799	28.8349	28.9511	28.9091	3.0886
	Mean + 3 Sigma	31.2283	31.1563	31.3137	31.2331	5.3696
						6.3149

		IIH_EN_3V3_VCC_3V3 (nA)		Voutmax 10dBm (V)		Vout_EN=1V1_RFOFF (mV)
	SN	PRE	POST	PRE	POST	PRE
CTRL	39	4.523	4.749	1.194	1.194	0.823
Biased	1	3.270	4.656	1.188	1.187	0.881
	2	2.799	3.575	1.188	1.188	0.845
	3	3.772	3.168	1.186	1.186	0.820
	4	3.488	5.210	1.208	1.207	0.803
	5	3.834	3.843	1.191	1.190	0.799
	6	3.671	2.120	1.181	1.182	0.830
	7	3.439	5.142	1.192	1.192	0.893
	8	2.021	5.352	1.194	1.193	0.811
	9	3.392	3.642	1.193	1.193	0.852
	10	3.973	2.442	1.189	1.189	0.797
	Min	2.021	2.120	1.181	1.182	0.797
	Max	3.973	5.352	1.208	1.207	0.893
	Mean	3.3659	3.9150	1.1910	1.1907	0.8331
	Std. Dev	0.5779	1.1519	0.0071	0.0067	0.0340
	Mean - 3 Sigma	1.6321	0.4593	1.1698	1.1707	0.7310
	Mean + 3 Sigma	5.0997	7.3707	1.2122	1.2107	0.9352
UnBiased	11	2.742	2.426	1.178	1.178	0.805
	12	4.347	4.756	1.192	1.192	0.788
	13	3.461	2.597	1.202	1.202	0.777
	14	4.533	3.571	1.194	1.194	0.795
	15	4.098	4.379	1.181	1.181	0.791
	16	3.343	3.320	1.184	1.183	0.814
	17	4.417	3.021	1.179	1.179	0.783
	18	3.810	3.407	1.185	1.184	0.801
	19	3.017	3.151	1.181	1.180	0.791
	20	3.683	3.753	1.192	1.191	0.782
	Min	2.742	2.426	1.178	1.178	0.777
	Max	4.533	4.756	1.202	1.202	0.814
	Mean	3.7451	3.4381	1.1868	1.1864	0.7927
	Std. Dev	0.6097	0.7259	0.0078	0.0079	0.0114
	Mean - 3 Sigma	1.9159	1.2605	1.1633	1.1626	0.7586
	Mean + 3 Sigma	5.5743	5.6157	1.2103	1.2102	0.8268

		LogSlope_2.14GHz		Intercept_2.14GHz		Lin Error 2.14GHz (dB)	
	SN	PRE	POST	PRE	POST	PRE	POST
CTRL	39	0.029	0.029	-39.371	-39.460	0.155	0.166
Biased	1	0.028	0.028	-40.020	-40.046	0.171	0.177
	2	0.028	0.028	-40.333	-40.424	0.176	0.178
	3	0.029	0.029	-40.269	-40.334	0.152	0.160
	4	0.029	0.029	-39.839	-39.979	0.159	0.169
	5	0.028	0.028	-40.011	-40.079	0.174	0.179
	6	0.028	0.028	-40.426	-40.508	0.162	0.171
	7	0.029	0.029	-40.187	-40.363	0.164	0.172
	8	0.028	0.028	-39.392	-39.531	0.158	0.156
	9	0.029	0.029	-39.732	-39.830	0.156	0.158
	10	0.029	0.029	-40.026	-40.110	0.168	0.173
	Min	0.028	0.028	-40.426	-40.508	0.152	0.156
	Max	0.029	0.029	-39.392	-39.531	0.176	0.179
	Mean	0.0285	0.0285	-40.0235	-40.1204	0.1640	0.1693
	Std. Dev	0.0005	0.0005	0.3096	0.2993	0.0080	0.0085
	Mean - 3 Sigma	0.0269	0.0269	-40.9524	-41.0182	0.1399	0.1439
	Mean + 3 Sigma	0.0301	0.0301	-39.0946	-39.2226	0.1881	0.1947
UnBiased	11	0.028	0.028	-40.358	-40.506	0.155	0.167
	12	0.029	0.029	-39.665	-39.836	0.142	0.150
	13	0.029	0.029	-40.129	-40.277	0.122	0.127
	14	0.029	0.029	-39.561	-39.704	0.144	0.151
	15	0.029	0.029	-39.843	-40.021	0.167	0.172
	16	0.028	0.028	-40.031	-40.171	0.170	0.177
	17	0.028	0.028	-40.185	-40.308	0.169	0.179
	18	0.029	0.029	-39.898	-40.012	0.163	0.175
	19	0.028	0.028	-40.575	-40.719	0.178	0.186
	20	0.029	0.029	-39.932	-40.050	0.163	0.169
	Min	0.028	0.028	-40.575	-40.719	0.122	0.127
	Max	0.029	0.029	-39.561	-39.704	0.178	0.186
	Mean	0.0286	0.0286	-40.0177	-40.1604	0.1573	0.1653
	Std. Dev	0.0005	0.0005	0.3077	0.3044	0.0168	0.0177
	Mean - 3 Sigma	0.0271	0.0271	-40.9408	-41.0737	0.1068	0.1123
	Mean + 3 Sigma	0.0301	0.0301	-39.0946	-39.2471	0.2078	0.2183

		LogSlope_20GHz		Intercept_20GHz		Lin Error 20GHz (dB)	
	SN	PRE	POST	PRE	POST	PRE	POST
CTRL	39	0.029	0.029	-37.694	-37.699	0.132	0.133
Biased	1	0.028	0.028	-38.203	-38.302	0.146	0.150
	2	0.028	0.028	-38.609	-38.717	0.134	0.137
	3	0.029	0.029	-38.360	-38.560	0.132	0.142
	4	0.029	0.029	-37.951	-38.196	0.153	0.159
	5	0.028	0.028	-38.201	-38.394	0.137	0.139
	6	0.028	0.028	-38.635	-38.835	0.136	0.141
	7	0.029	0.029	-38.442	-38.699	0.134	0.142
	8	0.028	0.028	-37.676	-37.853	0.139	0.143
	9	0.029	0.029	-37.939	-38.106	0.140	0.143
	10	0.029	0.029	-38.250	-38.352	0.133	0.139
	Min	0.028	0.028	-38.635	-38.835	0.132	0.137
	Max	0.029	0.029	-37.676	-37.853	0.153	0.159
	Mean	0.0285	0.0285	-38.2266	-38.4014	0.1384	0.1435
	Std. Dev	0.0005	0.0005	0.3057	0.3062	0.0066	0.0065
	Mean - 3 Sigma	0.0269	0.0269	-39.1436	-39.3200	0.1186	0.1241
	Mean + 3 Sigma	0.0301	0.0301	-37.3096	-37.4828	0.1582	0.1629
UnBiased	11	0.028	0.028	-38.493	-38.671	0.124	0.134
	12	0.029	0.029	-37.895	-38.132	0.117	0.123
	13	0.029	0.029	-38.377	-38.490	0.156	0.158
	14	0.029	0.029	-37.776	-37.995	0.106	0.113
	15	0.029	0.029	-38.012	-38.384	0.139	0.148
	16	0.028	0.028	-38.188	-38.501	0.140	0.149
	17	0.028	0.028	-38.398	-38.616	0.148	0.150
	18	0.029	0.029	-38.087	-38.286	0.133	0.135
	19	0.028	0.028	-38.794	-39.029	0.133	0.139
	20	0.029	0.029	-38.187	-38.361	0.139	0.150
	Min	0.028	0.028	-38.794	-39.029	0.106	0.113
	Max	0.029	0.029	-37.776	-37.995	0.156	0.158
	Mean	0.0286	0.0286	-38.2207	-38.4465	0.1335	0.1399
	Std. Dev	0.0005	0.0005	0.3030	0.2912	0.0147	0.0139
	Mean - 3 Sigma	0.0271	0.0271	-39.1296	-39.3200	0.0895	0.0981
	Mean + 3 Sigma	0.0301	0.0301	-37.3118	-37.5730	0.1775	0.1817

		LogSlope_18GHz		Intercept_18GHz		Lin Error 18GHz (dB)	
	SN	PRE	POST	PRE	POST	PRE	POST
CTRL	39	0.029	0.029	-38.661	-38.463	0.167	0.164
Biased	1	0.028	0.028	-39.219	-38.786	0.163	0.141
	2	0.028	0.028	-39.585	-39.223	0.181	0.157
	3	0.029	0.029	-39.365	-39.051	0.134	0.115
	4	0.029	0.029	-38.971	-38.696	0.147	0.128
	5	0.029	0.029	-39.196	-38.858	0.175	0.156
	6	0.029	0.029	-39.646	-39.304	0.150	0.128
	7	0.029	0.029	-39.443	-39.153	0.170	0.146
	8	0.029	0.028	-38.657	-38.313	0.172	0.150
	9	0.029	0.029	-38.938	-38.550	0.166	0.146
	10	0.029	0.029	-39.254	-38.797	0.172	0.142
	Min	0.028	0.028	-39.646	-39.304	0.134	0.115
	Max	0.029	0.029	-38.657	-38.313	0.181	0.157
	Mean	0.0288	0.0287	-39.2274	-38.8731	0.1630	0.1409
	Std. Dev	0.0004	0.0005	0.3064	0.3129	0.0147	0.0134
	Mean - 3 Sigma	0.0275	0.0273	-40.1467	-39.8118	0.1188	0.1006
	Mean + 3 Sigma	0.0301	0.0301	-38.3081	-37.9344	0.2072	0.1812
UnBiased	11	0.029	0.028	-39.495	-39.112	0.132	0.110
	12	0.029	0.029	-38.857	-38.544	0.146	0.124
	13	0.030	0.029	-39.357	-38.896	0.098	0.094
	14	0.029	0.029	-38.730	-38.412	0.144	0.121
	15	0.029	0.029	-39.000	-38.812	0.191	0.176
	16	0.028	0.028	-39.198	-38.957	0.161	0.146
	17	0.029	0.029	-39.429	-39.090	0.157	0.134
	18	0.029	0.029	-39.088	-38.719	0.157	0.130
	19	0.028	0.028	-39.799	-39.510	0.161	0.133
	20	0.029	0.029	-39.182	-38.837	0.162	0.140
	Min	0.028	0.028	-39.799	-39.510	0.098	0.094
	Max	0.030	0.029	-38.730	-38.412	0.191	0.176
	Mean	0.0289	0.0287	-39.2135	-38.8889	0.1509	0.1308
	Std. Dev	0.0006	0.0005	0.3184	0.3099	0.0241	0.0219
	Mean - 3 Sigma	0.0272	0.0273	-40.1688	-39.8187	0.0785	0.0652
	Mean + 3 Sigma	0.0306	0.0301	-38.2582	-37.9591	0.2233	0.1964

		LogSlope_8GHz		Intercept_8GHz		Lin Error 8GHz (dB)	
	SN	PRE	POST	PRE	POST	PRE	POST
CTRL	39	0.029	0.029	-38.973	-39.013	0.169	0.168
Biased	1	0.028	0.028	-39.582	-39.561	0.168	0.162
	2	0.028	0.028	-39.856	-39.893	0.181	0.170
	3	0.029	0.029	-39.378	-39.850	0.124	0.144
	4	0.029	0.029	-39.368	-39.454	0.150	0.151
	5	0.029	0.029	-39.548	-39.546	0.181	0.173
	6	0.029	0.028	-39.994	-40.020	0.158	0.155
	7	0.029	0.029	-39.734	-39.855	0.171	0.163
	8	0.029	0.028	-38.971	-39.046	0.173	0.160
	9	0.029	0.029	-39.315	-39.371	0.168	0.157
	10	0.029	0.029	-39.578	-39.636	0.175	0.165
	Min	0.028	0.028	-39.994	-40.020	0.124	0.144
	Max	0.029	0.029	-38.971	-39.046	0.181	0.173
	Mean	0.029	0.029	-39.532	-39.623	0.165	0.160
	Std. Dev	0.000	0.001	0.294	0.293	0.017	0.009
	Mean - 3 Sigma	0.028	0.027	-40.414	-40.501	0.113	0.134
	Mean + 3 Sigma	0.030	0.030	-38.651	-38.745	0.217	0.186
UnBiased	11	0.029	0.028	-39.936	-40.049	0.154	0.152
	12	0.029	0.029	-39.286	-39.429	0.158	0.149
	13	0.030	0.029	-39.624	-39.731	0.095	0.108
	14	0.029	0.029	-39.146	-39.260	0.156	0.149
	15	0.029	0.029	-39.404	-39.524	0.191	0.177
	16	0.028	0.028	-39.595	-39.693	0.167	0.163
	17	0.029	0.029	-39.722	-39.814	0.167	0.162
	18	0.029	0.029	-39.448	-39.550	0.168	0.163
	19	0.028	0.028	-40.113	-40.239	0.175	0.171
	20	0.029	0.029	-39.492	-39.574	0.162	0.158
	Min	0.0280	0.0280	-40.1130	-40.2390	0.0950	0.1080
	Max	0.0300	0.0290	-39.1460	-39.2600	0.1910	0.1770
	Mean	0.0289	0.0287	-39.5766	-39.6863	0.1593	0.1552
	Std. Dev	0.0006	0.0005	0.2914	0.2908	0.0250	0.0189
	Mean - 3 Sigma	0.0272	0.0273	-40.4507	-40.5586	0.0843	0.0985
	Mean + 3 Sigma	0.0306	0.0301	-38.7025	-38.8140	0.2343	0.2119

		LogSlope_100MHz		Intercept_100MHz		Lin Error 100MHz (dB)	
	SN	PRE	POST	PRE	POST	PRE	POST
CTRL	39	0.029	0.029	-37.453	-37.594	0.099	0.097
Biased	1	0.028	0.028	-38.487	-38.559	0.132	0.136
	2	0.028	0.028	-38.808	-38.947	0.108	0.109
	3	0.029	0.029	-38.609	-38.755	0.126	0.131
	4	0.029	0.028	-38.342	-38.483	0.137	0.149
	5	0.028	0.028	-38.446	-38.600	0.116	0.110
	6	0.028	0.028	-38.904	-39.026	0.128	0.131
	7	0.029	0.029	-38.635	-38.847	0.110	0.112
	8	0.028	0.028	-37.645	-37.835	0.102	0.102
	9	0.029	0.029	-37.950	-38.147	0.118	0.110
	10	0.029	0.029	-38.513	-38.633	0.108	0.114
	Min	0.028	0.028	-38.904	-39.026	0.102	0.102
	Max	0.029	0.029	-37.645	-37.835	0.137	0.149
	Mean	0.029	0.028	-38.434	-38.583	0.119	0.120
	Std. Dev	0.001	0.001	0.381	0.364	0.012	0.015
	Mean - 3 Sigma	0.027	0.027	-39.577	-39.675	0.083	0.075
	Mean + 3 Sigma	0.030	0.030	-37.291	-37.492	0.154	0.166
UnBiased	11	0.028	0.028	-38.862	-39.007	0.115	0.125
	12	0.029	0.029	-37.865	-38.101	0.091	0.094
	13	0.029	0.029	-38.365	-38.573	0.182	0.188
	14	0.029	0.028	-37.729	-37.889	0.081	0.090
	15	0.029	0.028	-38.269	-38.474	0.093	0.095
	16	0.028	0.028	-38.552	-38.742	0.122	0.124
	17	0.028	0.028	-38.707	-38.857	0.132	0.139
	18	0.028	0.028	-38.351	-38.491	0.113	0.123
	19	0.028	0.028	-39.182	-39.363	0.112	0.116
	20	0.029	0.029	-38.208	-38.369	0.124	0.128
	Min	0.028	0.028	-39.182	-39.363	0.081	0.090
	Max	0.029	0.029	-37.729	-37.889	0.182	0.188
	Mean	0.029	0.028	-38.409	-38.587	0.117	0.122
	Std. Dev	0.001	0.000	0.439	0.431	0.028	0.028
	Mean - 3 Sigma	0.027	0.027	-39.726	-39.878	0.032	0.037
	Mean + 3 Sigma	0.030	0.030	-37.092	-37.295	0.201	0.207











