



AHEAD OF WHAT'S POSSIBLE™

HIGH DOSE RADIATION TEST REPORT ADH519S

September 2019
Generic



Radiation Test Report	
Product:	ADH519S
Gamma:	0, 30k, 50k, 100k, 24hr
Gamma Source:	Co60/TM1019 Condition A
Dose Rate:	142 Rad/s
Facilities:	VPT RAD
Tested:	8/26/19

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

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SN	Idd Vdd=3V (mA)					Gain 17.5GHz (dB)				
	0k	30k	50k	100k	24hr	0k	30k	50k	100k	24hr
7	59.088	59.179	59.123	59.184	59.134	13.511	13.414	13.431	13.388	13.437
1	59.028	59.511	59.430	59.441	59.576	12.988	12.980	12.971	12.986	13.025
2	57.365	57.475	57.526	57.460	57.742	12.915	13.015	12.984	13.060	13.049
3	62.676	62.817	62.848	62.838	62.937	13.551	13.607	13.593	13.600	13.584
9	67.059	67.386	67.396	67.471	67.531	14.096	14.226	14.239	14.162	14.211
11	60.601	60.797	60.843	60.822	61.033	13.165	13.187	13.183	13.096	13.192
13	57.229	57.466	57.496	57.491	57.732	12.887	12.860	12.877	12.879	12.869
14	61.803	61.949	61.882	61.963	62.154	13.382	13.459	13.430	13.456	13.453
15	67.064	67.184	67.240	67.245	67.350	14.132	14.178	14.129	14.203	14.150
min	57.229	57.466	57.496	57.460	57.732	12.887	12.860	12.877	12.879	12.869
max	67.064	67.386	67.396	67.471	67.531	14.132	14.226	14.239	14.203	14.211
mean	61.603	61.823	61.833	61.841	62.007	13.390	13.439	13.426	13.430	13.442
std. dev	3.882	3.873	3.879	3.906	3.841	0.502	0.532	0.527	0.523	0.512
mean - 3 sigma	49.956	50.205	50.196	50.122	50.483	11.883	11.842	11.844	11.862	11.907
mean +3 sigma	73.250	73.441	73.469	73.561	73.530	14.897	15.036	15.007	14.998	14.977

SN	Gain 20.5GHz (dB)					Gain 25.5GHz (dB)				
	0k	30k	50k	100k	24hr	0k	30k	50k	100k	24hr
7	14.418	14.159	14.194	14.156	14.184	13.216	13.107	13.091	13.137	13.127
1	13.970	13.929	13.913	13.927	13.978	13.184	13.006	12.985	13.019	13.033
2	13.754	13.835	13.797	13.823	13.796	12.807	12.870	12.871	12.854	12.877
3	14.433	14.513	14.511	14.506	14.512	13.508	13.412	13.418	13.416	13.424
9	14.965	15.009	15.025	15.026	15.036	14.009	13.830	13.869	13.792	13.837
11	14.110	14.093	14.118	14.079	14.100	13.354	13.168	13.176	13.143	13.206
13	13.686	13.728	13.715	13.724	13.725	12.962	12.749	12.769	12.778	12.826
14	14.204	14.289	14.319	14.324	14.305	13.330	13.248	13.251	13.261	13.287
15	14.966	14.990	15.004	14.989	14.970	13.721	13.760	13.778	13.755	13.877
min	13.686	13.728	13.715	13.724	13.725	12.807	12.749	12.769	12.778	12.826
max	14.966	15.009	15.025	15.026	15.036	14.009	13.830	13.869	13.792	13.877
mean	14.261	14.298	14.300	14.300	14.303	13.359	13.255	13.265	13.252	13.296
std. dev	0.496	0.500	0.513	0.506	0.502	0.391	0.393	0.404	0.382	0.400
mean - 3 sigma	12.774	12.800	12.761	12.782	12.797	12.187	12.075	12.054	12.107	12.096
mean +3 sigma	15.748	15.797	15.840	15.818	15.809	14.532	14.436	14.475	14.398	14.496

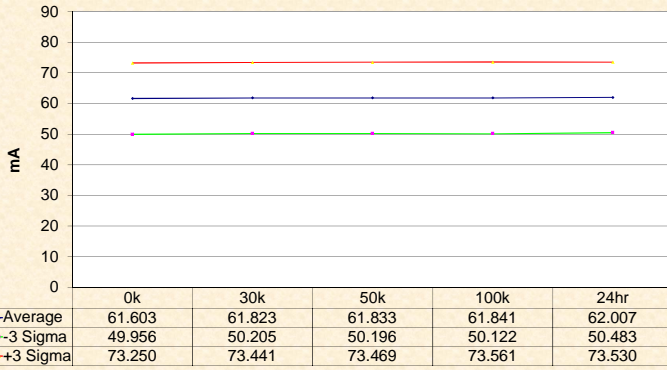
SN	Gain 30.5GHz (dB)					Gain 31.5GHz (dB)				
	0k	30k	50k	100k	24hr	0k	30k	50k	100k	24hr
7	12.603	12.520	12.484	12.486	12.525	12.699	12.553	12.454	12.581	12.579
1	12.491	12.436	12.462	12.429	12.521	12.600	12.442	12.441	12.453	12.485
2	12.404	12.271	12.247	12.287	12.363	12.437	12.362	12.366	12.348	12.433
3	12.772	12.724	12.689	12.663	12.837	12.875	12.856	12.834	12.833	12.944
9	13.157	13.159	13.105	13.197	13.244	13.269	13.189	13.179	13.173	13.237
11	12.677	12.569	12.571	12.446	12.636	12.737	12.633	12.651	12.604	12.686
13	12.281	12.246	12.205	12.157	12.304	12.364	12.290	12.264	12.281	12.351
14	12.790	12.697	12.645	12.609	12.786	12.886	12.846	12.850	12.841	12.937
15	13.242	13.118	13.129	13.149	13.354	13.134	13.240	13.255	13.153	13.273
min	12.281	12.246	12.205	12.157	12.304	12.364	12.290	12.264	12.281	12.351
max	13.242	13.159	13.129	13.197	13.354	13.269	13.240	13.255	13.173	13.273
mean	12.727	12.652	12.632	12.617	12.755	12.788	12.732	12.730	12.711	12.793
std. dev	0.342	0.347	0.346	0.380	0.384	0.319	0.363	0.367	0.345	0.359
mean - 3 sigma	11.701	11.610	11.593	11.478	11.603	11.832	11.644	11.630	11.675	11.716
mean +3 sigma	13.753	13.695	13.670	13.756	13.907	13.743	13.821	13.830	13.746	13.870

SN	Noise Figure 17.5GHz (dB)					Noise Figure 20.5GHz (dB)				
	0k	30k	50k	100k	24hr	0k	30k	50k	100k	24hr
7	2.717	2.589	2.593	2.504	2.617	2.616	2.544	2.507	2.397	2.147
1	2.624	2.536	2.714	2.582	2.611	2.569	2.584	2.379	2.434	2.526
2	2.833	2.529	2.573	2.699	2.620	2.657	2.494	2.763	2.499	2.594
3	2.620	2.509	2.531	2.680	2.344	2.432	2.442	2.448	2.409	2.325
9	2.484	2.416	2.436	2.429	2.462	2.427	2.172	2.337	2.347	2.342
11	2.691	2.649	2.591	2.494	2.647	2.658	2.605	2.262	2.374	2.609
13	2.673	2.605	2.711	2.640	2.542	2.570	2.420	2.614	2.542	2.463
14	2.601	2.498	2.551	2.473	2.529	2.424	2.503	2.592	2.521	2.453
15	2.515	2.311	2.475	2.452	2.481	2.332	2.402	2.223	2.476	2.583
min	2.484	2.311	2.436	2.429	2.344	2.332	2.172	2.223	2.347	2.325
max	2.833	2.649	2.714	2.699	2.647	2.658	2.605	2.763	2.542	2.609
mean	2.630	2.507	2.573	2.556	2.529	2.508	2.453	2.452	2.450	2.487
std. dev	0.108	0.105	0.100	0.108	0.100	0.121	0.135	0.189	0.071	0.111
mean - 3 sigma	2.305	2.190	2.273	2.232	2.229	2.145	2.049	1.886	2.238	2.154
mean +3 sigma	2.955	2.823	2.872	2.880	2.830	2.872	2.857	3.019	2.662	2.820

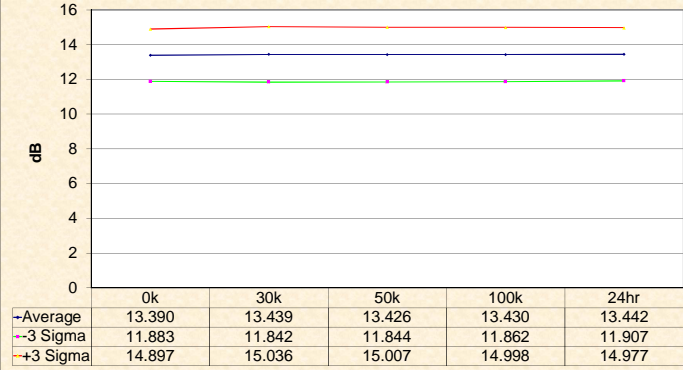
SN	Noise Figure 25.5GHz (dB)					Noise Figure 30.5GHz (dB)				
	0k	30k	50k	100k	24hr	0k	30k	50k	100k	24hr
7	2.734	2.734	2.683	2.657	2.464	3.208	2.843	2.580	3.155	2.920
1	2.626	2.626	2.750	2.643	2.538	2.792	2.648	2.826	2.863	2.752
2	2.491	2.491	2.544	2.485	2.704	3.124	3.211	3.174	2.995	2.853
3	2.655	2.655	2.542	2.575	2.448	2.813	2.774	2.793	3.001	2.853
9	2.596	2.596	2.498	2.558	2.409	2.984	2.717	2.918	2.633	2.744
11	2.527	2.527	2.455	2.598	2.526	2.988	2.641	2.716	2.510	2.877
13	2.805	2.805	2.801	2.503	2.628	3.091	2.813	2.963	2.833	2.868
14	2.682	2.682	2.591	2.648	2.565	3.083	2.442	2.851	2.762	2.597
15	2.524	2.524	2.605	2.408	2.510	2.792	2.579	2.628	2.799	2.566
min	2.491	2.491	2.455	2.408	2.409	2.792	2.442	2.628	2.510	2.566
max	2.805	2.805	2.801	2.648	2.704	3.124	3.211	3.174	3.001	2.877
mean	2.613	2.613	2.598	2.552	2.541	2.958	2.728	2.859	2.799	2.764
std. dev	0.103	0.103	0.120	0.083	0.094	0.141	0.227	0.166	0.168	0.124
mean - 3 sigma	2.305	2.305	2.238	2.304	2.259	2.536	2.047	2.360	2.297	2.393
mean +3 sigma	2.921	2.921	2.959	2.800	2.823	3.380	3.409	3.357	3.302	3.135

SN	Noise Figure 31.5GHz (dB)				
	0K	30k	50k	100k	24hr
7	3.138	3.064	2.797	3.000	2.937
1	2.826	3.007	2.863	2.954	3.058
2	3.117	3.049	3.357	3.139	2.913
3	3.197	2.829	2.898	2.918	3.155
9	3.018	2.917	3.109	2.932	2.669
11	3.038	2.826	2.812	2.749	2.912
13	3.153	3.102	2.962	2.934	3.045
14	3.068	2.859	2.888	2.976	2.764
15	3.114	2.814	2.688	2.621	2.575
min	2.826	2.814	2.688	2.621	2.575
max	3.197	3.102	3.357	3.139	3.155
mean	3.066	2.925	2.947	2.903	2.886
std. dev	0.114	0.113	0.205	0.155	0.203
mean - 3 sigma	2.725	2.587	2.333	2.437	2.279
mean +3 sigma	3.407	3.264	3.561	3.369	3.494

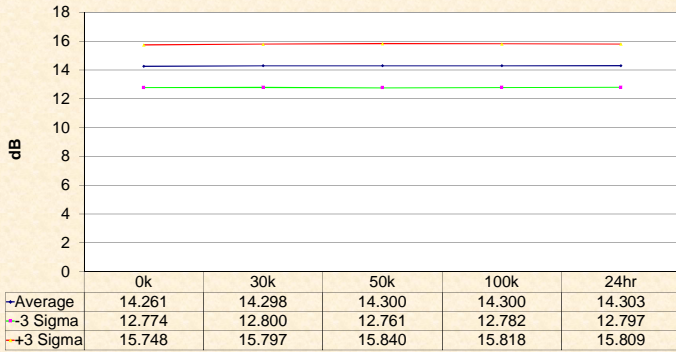
Idd Vdd = 3V



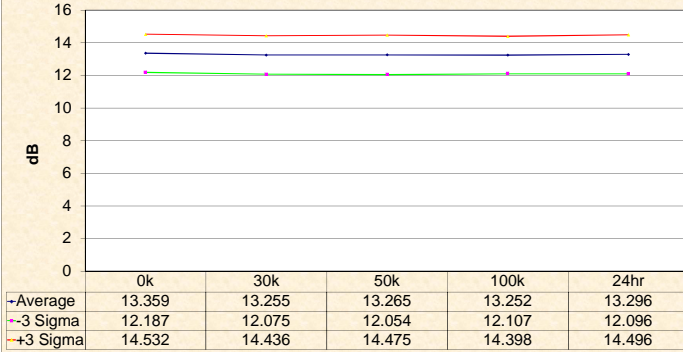
Gain 19.5GHz



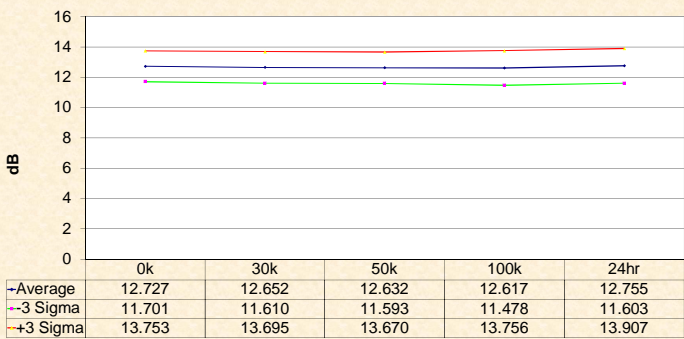
Gain 20.5GHz



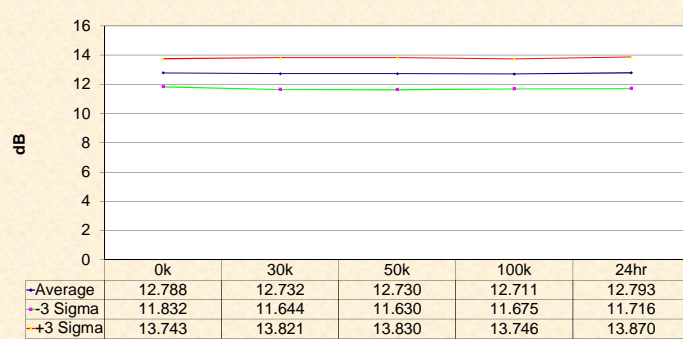
Gain 25.5GHz



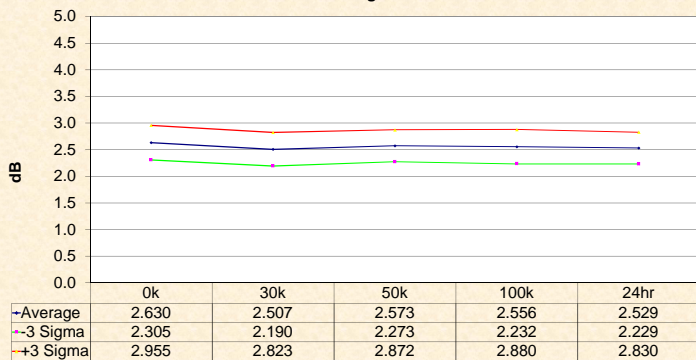
Gain 30.5GHz



Gain 31.5GHz



Noise Figure 19.5GHz



Noise Figure 20.5GHz

