

Heliotown FSX-10S (12-bit) Spectrograph Step Cal

29-Jan-2017 00:52 UTC

HP461A noise source + Kay 431D step attenuator + MCL Splitter

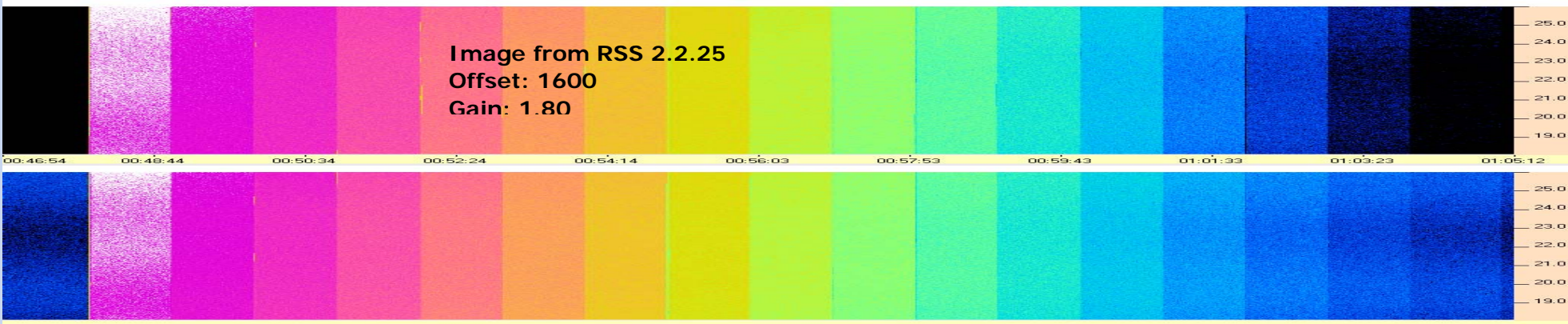
Calibration Plane: 90 Deg Hybrid Inputs

T0 (K)	290
Noise source temperature (MK)	35.7
Feed loss, cal plane to antenna (dB)	2.3
Receiver noise figure (dB)	6.0

	Side A	Side B	Side A	Side B
RSS Color Offset:	1600	1600	1725	1725
RSS Color Gain:	1.80	1.80	2.40	2.40

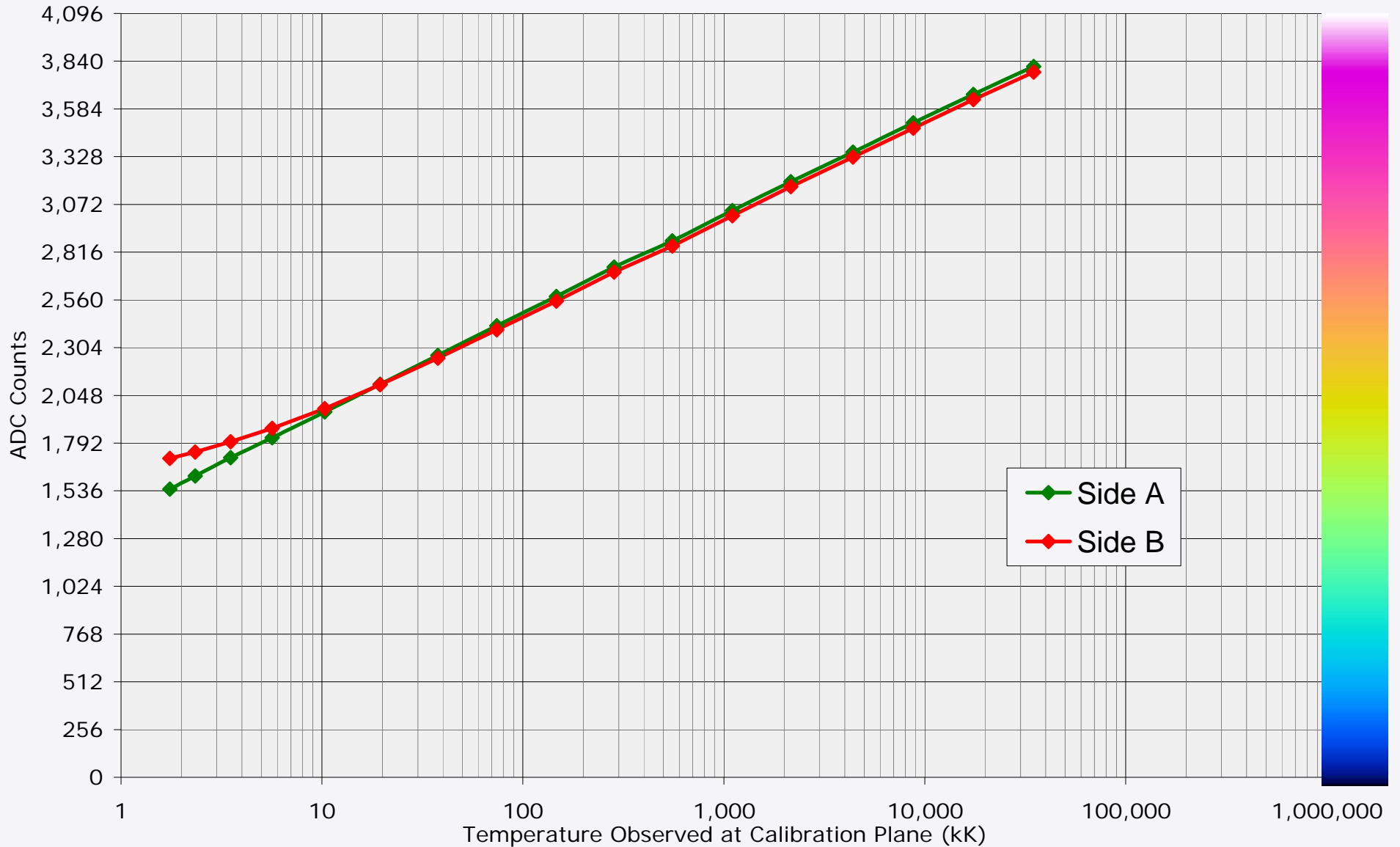
Att. dB	Source Temp (kK)	Equiv. Ant. Temp. (kK)	Side A ADC Counts	Side B ADC Counts
0.1	34,888	59,247	3811	3782
3.1	17,486	29,694	3662	3634
6.1	8,764	14,882	3509	3481
9.1	4,393	7,459	3352	3326
12.2	2,152	3,653	3194	3167
15.1	1,104	1,874	3039	3011
18.1	554	939	2877	2849
21.0	285	482	2736	2709
23.9	147	247	2578	2553
26.9	74	124	2421	2400
29.9	38	62	2263	2248
32.9	19	31	2108	2105
35.9	10.3	16	1959	1977
39.0	5.7	8	1821	1871
41.8	3.5	4.3	1714	1799
44.8	2.3	2.3	1616	1744
47.8	1.8	1.3	1545	1710

Solar		Jupiter	
Adjusted Value	Adjusted Value	Adjusted Value	Adjusted Value
3980	3928	4096	4096
3712	3661	4096	4096
3436	3386	4096	4096
3154	3107	3905	3842
2869	2821	3526	3461
2590	2540	3154	3086
2299	2248	2765	2698
2045	1996	2426	2362
1760	1715	2047	1987
1478	1440	1670	1620
1193	1166	1291	1255
914	909	919	912
646	679	562	605
398	488	230	350
205	358	0	178
29	259	0	46
0	198	0	0



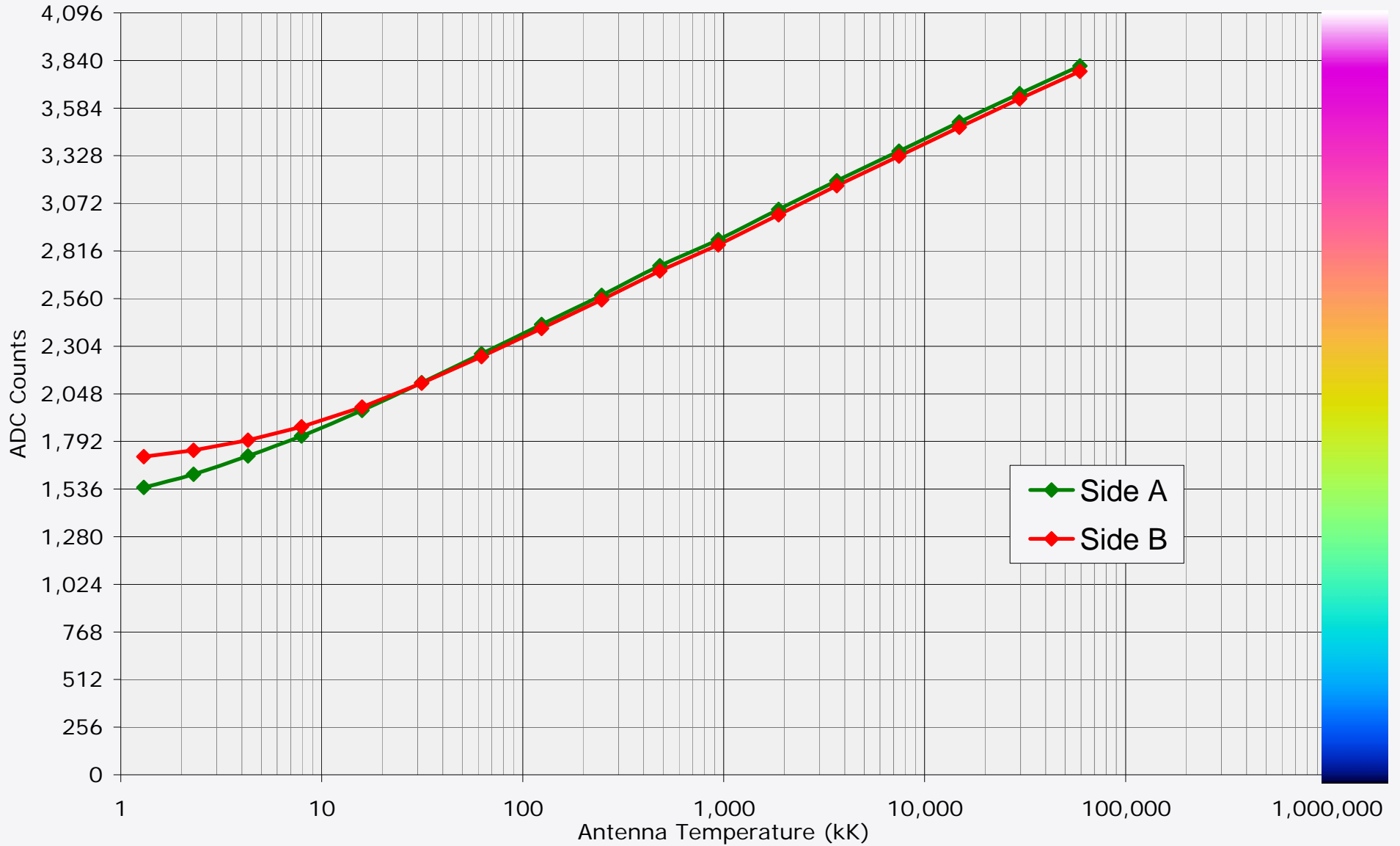
Raw ADC Output Value & Color vs Temperature Observed at 90 Deg Hybrid Inputs

Color Bar Corresponds to RSS Color Offset = 0, Color Gain = 1



Raw ADC Output Value & Color vs Antenna Temperature for 2.3 dB Feed Loss

Color Bar Corresponds to RSS Color Offset = 0, Color Gain = 1

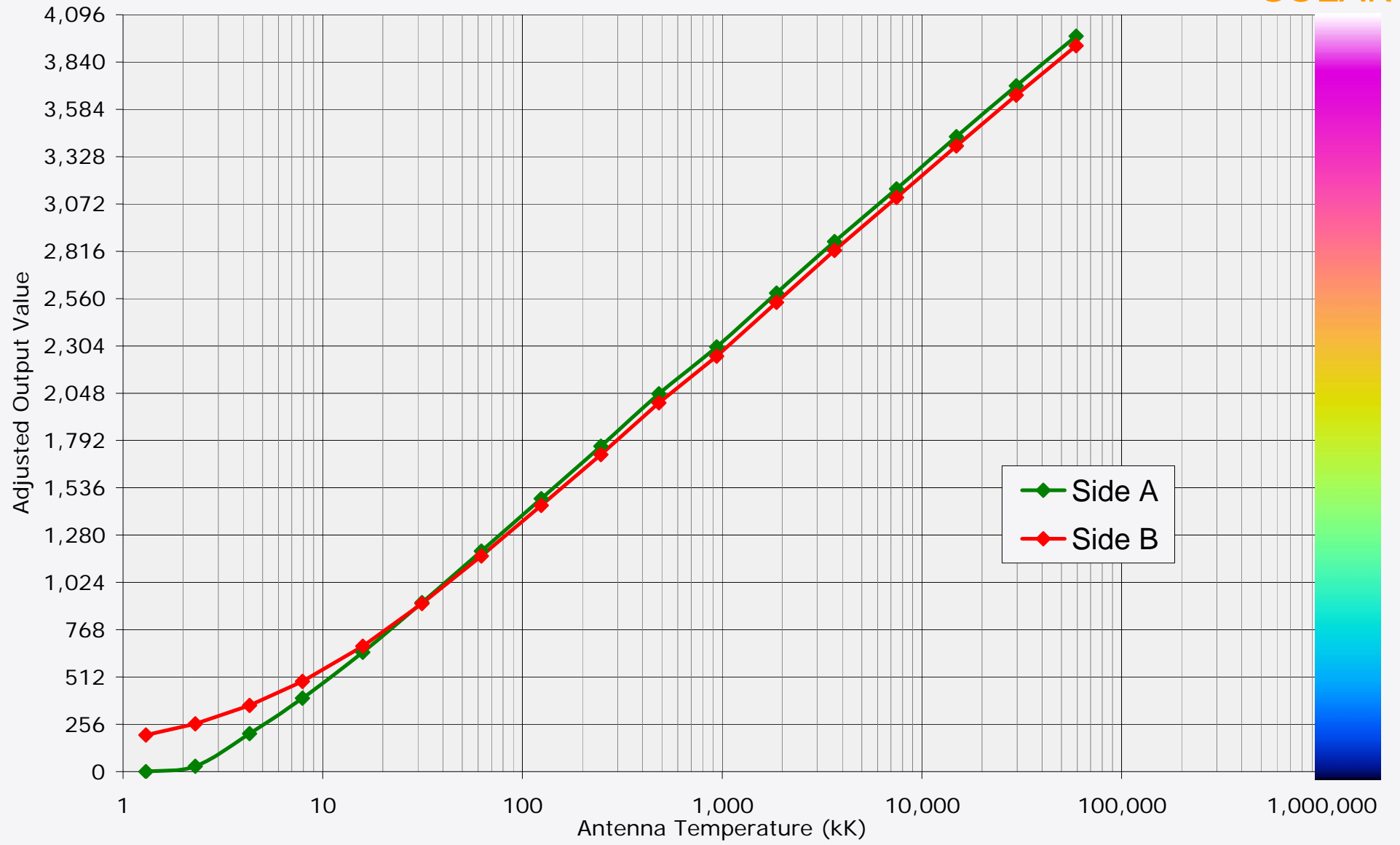


	Side A		Side B
Offset:	1600	Offset:	1600
Gain:	1.80	Gain:	1.80

Adjusted Output Value & Color vs Antenna Temperature for 2.3 dB Feed Loss

Color Bar Corresponds to RSS Color Offset = 1600, Color Gain = 1.80

SOLAR



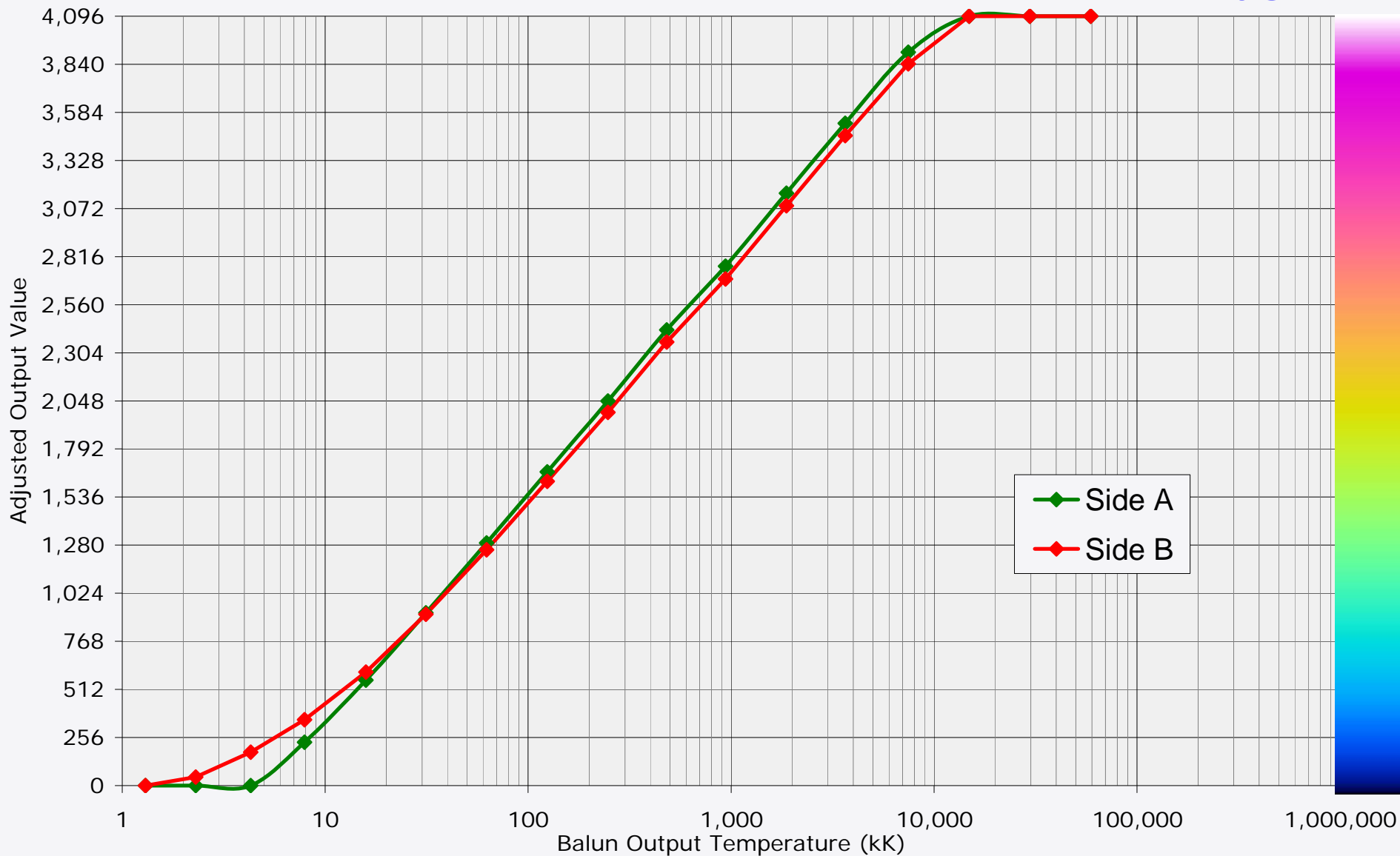
Side A
 Offset: 1725
 Gain: 2.40

Side B
 Offset: 1725
 Gain: 2.40

Adjusted Output Value & Color vs Antenna Temperature for 2.3 dB Feed Loss

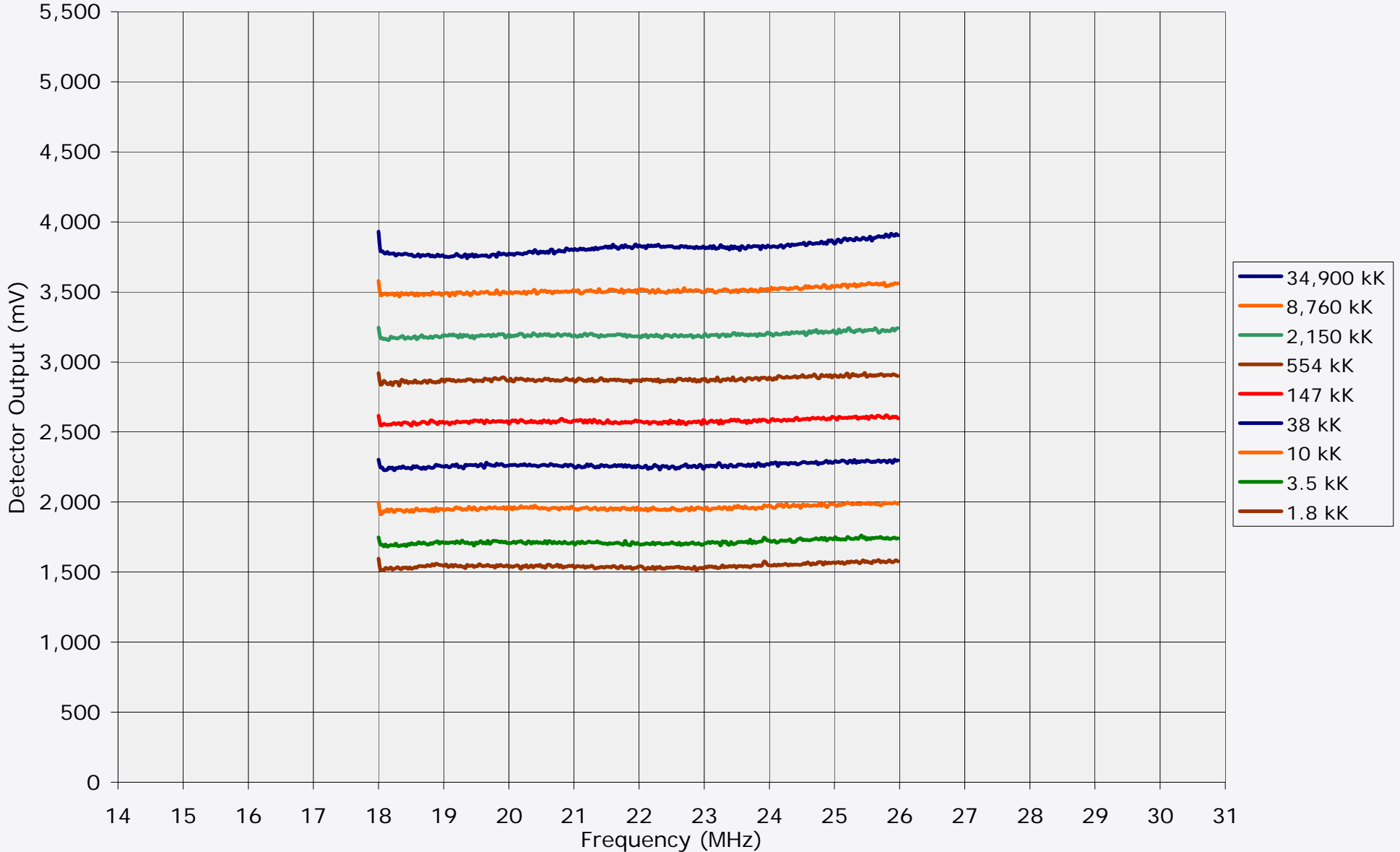
Color Bar Corresponds to RSS Color Offset = 1725, Color Gain = 2.40

JUPITER



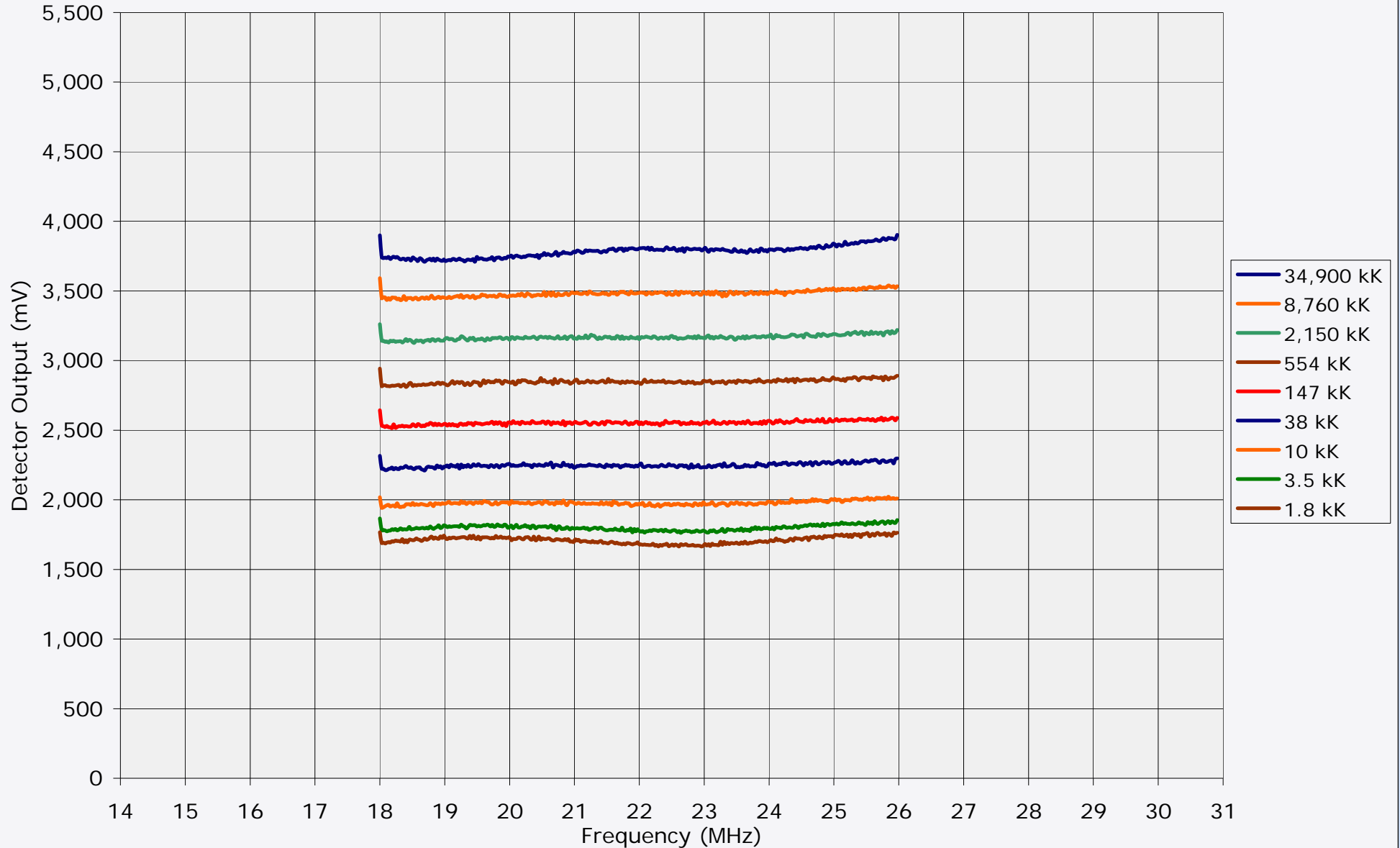
Side A Detector Output vs Frequency vs Temperature Observed at 90 Deg Hybrid Inputs

ADC Voltage Reference = 4.096 V Receiver Noise Figure = 6 dB



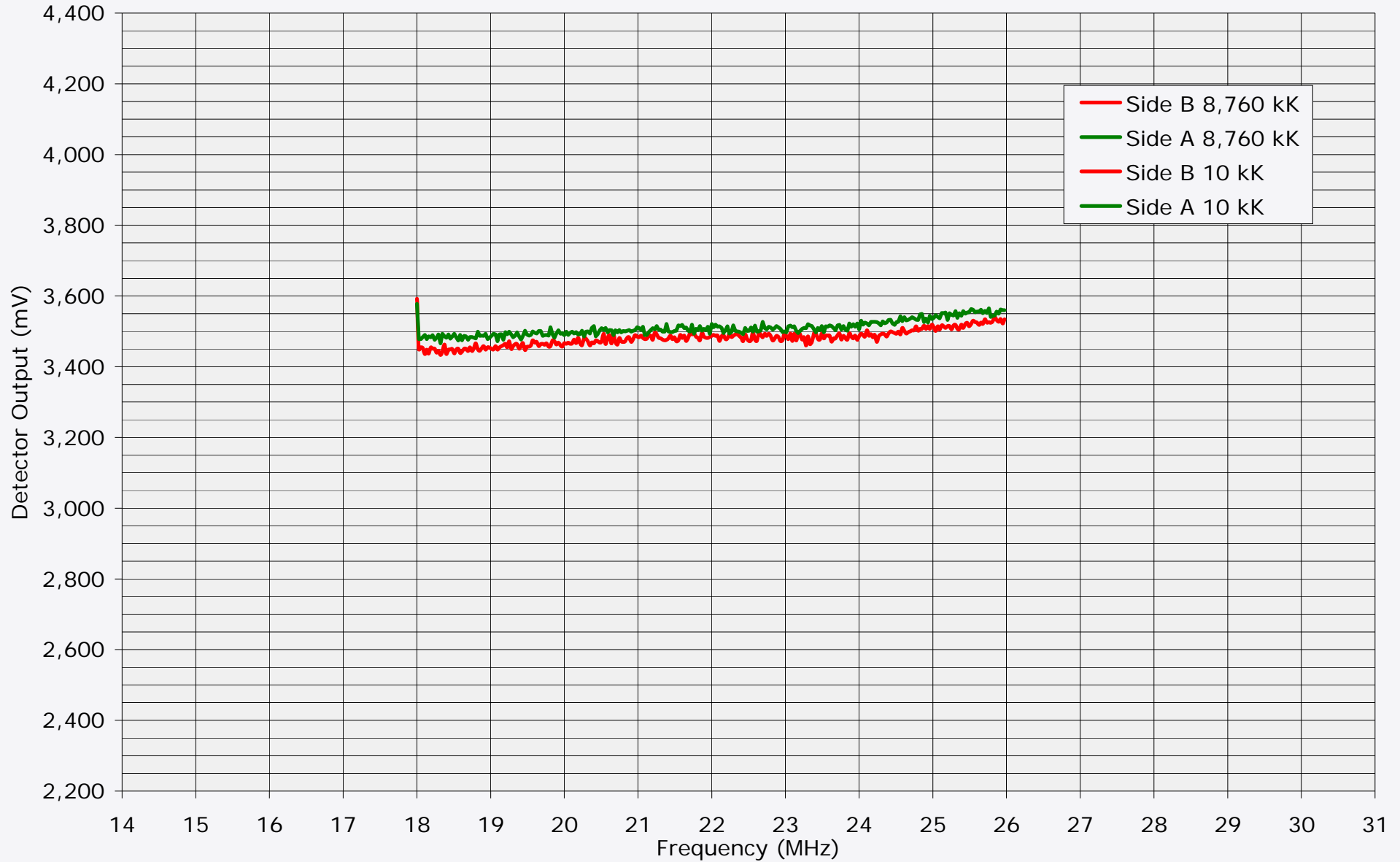
Side B Detector Output vs Frequency vs Temperature Observed at 90 Deg Hybrid Inputs

ADC Voltage Reference = 4.096 V Receiver Noise Figure = 6 dB

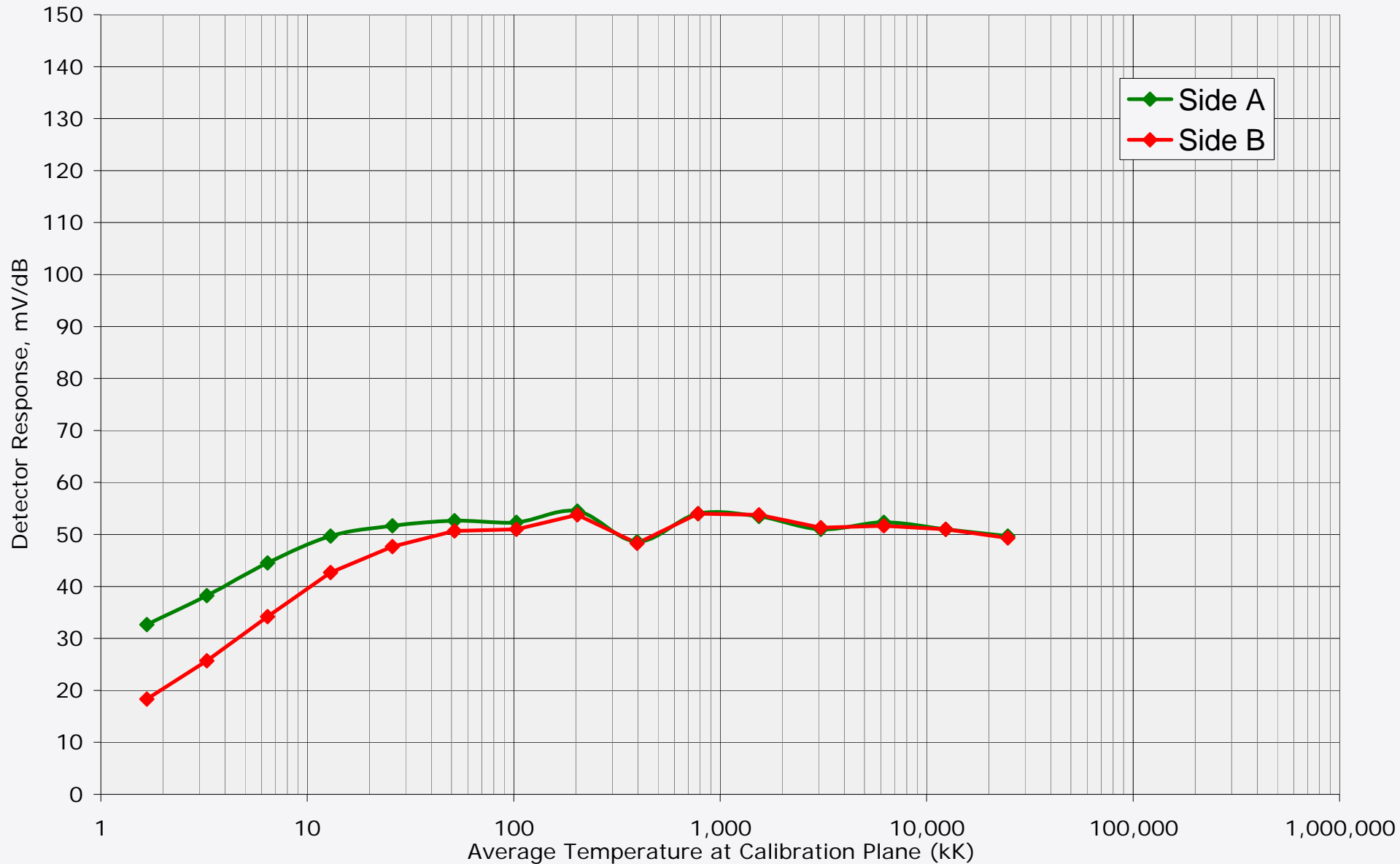


Side A & B Detector Output vs Frequency vs Temperature Observed at 90 Deg Hybrid Inputs

ADC Voltage Reference = 4.096 V Receiver Noise Figure = 6 dB



Detector Response Averaged Over Adjacent 3 dB Calibration Steps



Side B – Side A Response Mismatch

