

K4LED FSX-11 (12-bit) Spectrograph Step Calibration

16-Aug-2017 00:19 UTC

HP461A noise source + Kay 431D step attenuator

Calibration Plane: Spectrograph Input

T0 (K)	290
Noise source temperature (MK)	74.8
Feed loss, cal plane to antenna (dB)	3.1
Receiver noise figure (dB)	6.0

RSS Color Offset:	1875	1875	0.00	0.00
RSS Color Gain:	1.85	1.85	1.00	1.00

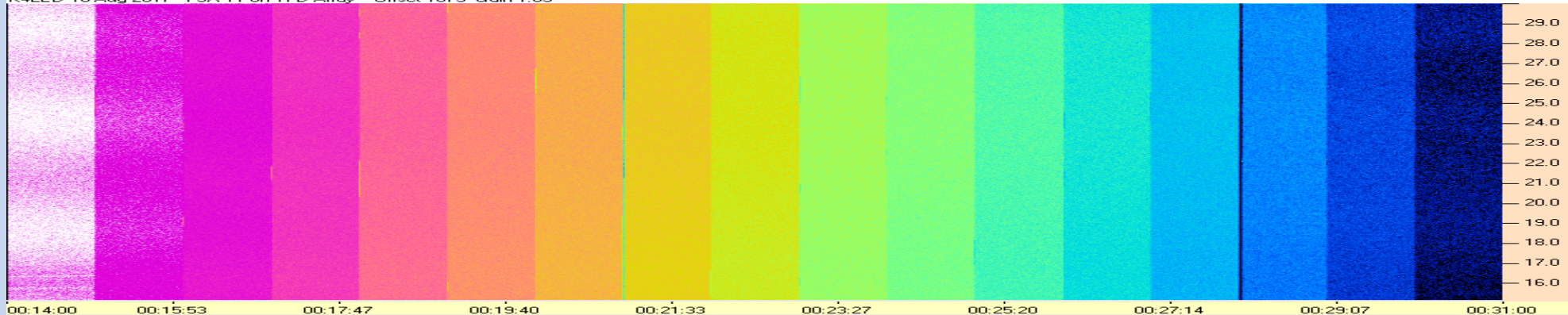
Solar Jupiter Custom 1 Custom 2
 ↓ ↓ ↓ ↓

Att. dB	Source Temp (kK)	Equiv. Ant. Temp. (kK)	50 s Avg. @ Average MHz
0.1	73,098	149,246	4055
3.1	36,636	74,800	3928
6.1	18,362	37,489	3828
9.1	9,204	18,789	3677
11.9	4,831	9,861	3475
14.8	2,478	5,057	3331
17.8	1,243	2,535	3186
21.1	582	1,186	3051
24.1	292	594	2905
27.0	150	305	2715
29.7	81	164	2624
32.6	42	84	2485
35.6	22	42	2347
38.7	11	21	2214
42.2	6	10	2098
45.1	3	5	1991
48.1	2	3	1904

Adjusted Value	Adjusted Value	Adjusted Value	Adjusted Value
4033	4033	4055	4055
3798	3798	3928	3928
3613	3613	3828	3828
3334	3334	3677	3677
2960	2960	3475	3475
2694	2694	3331	3331
2425	2425	3186	3186
2176	2176	3051	3051
1906	1906	2905	2905
1554	1554	2715	2715
1386	1386	2624	2624
1129	1129	2485	2485
873	873	2347	2347
627	627	2214	2214
413	413	2098	2098
215	215	1991	1991
54	54	1904	1904

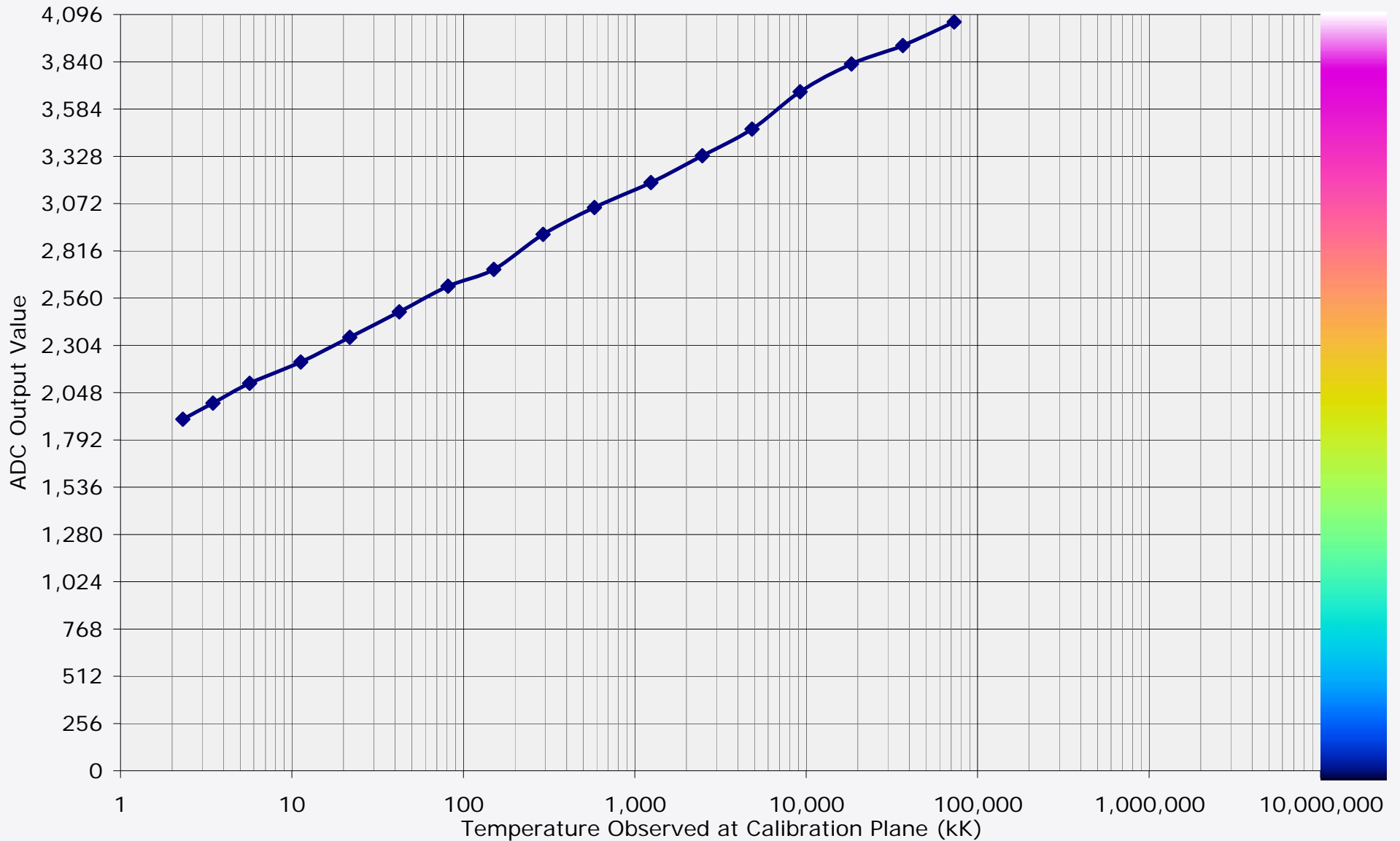
Image Below
 Offset: 1875
 Gain: 1.85

K4LED 16 Aug 2017 - FSX-11 on TFD Array - Offset 1875 Gain 1.85



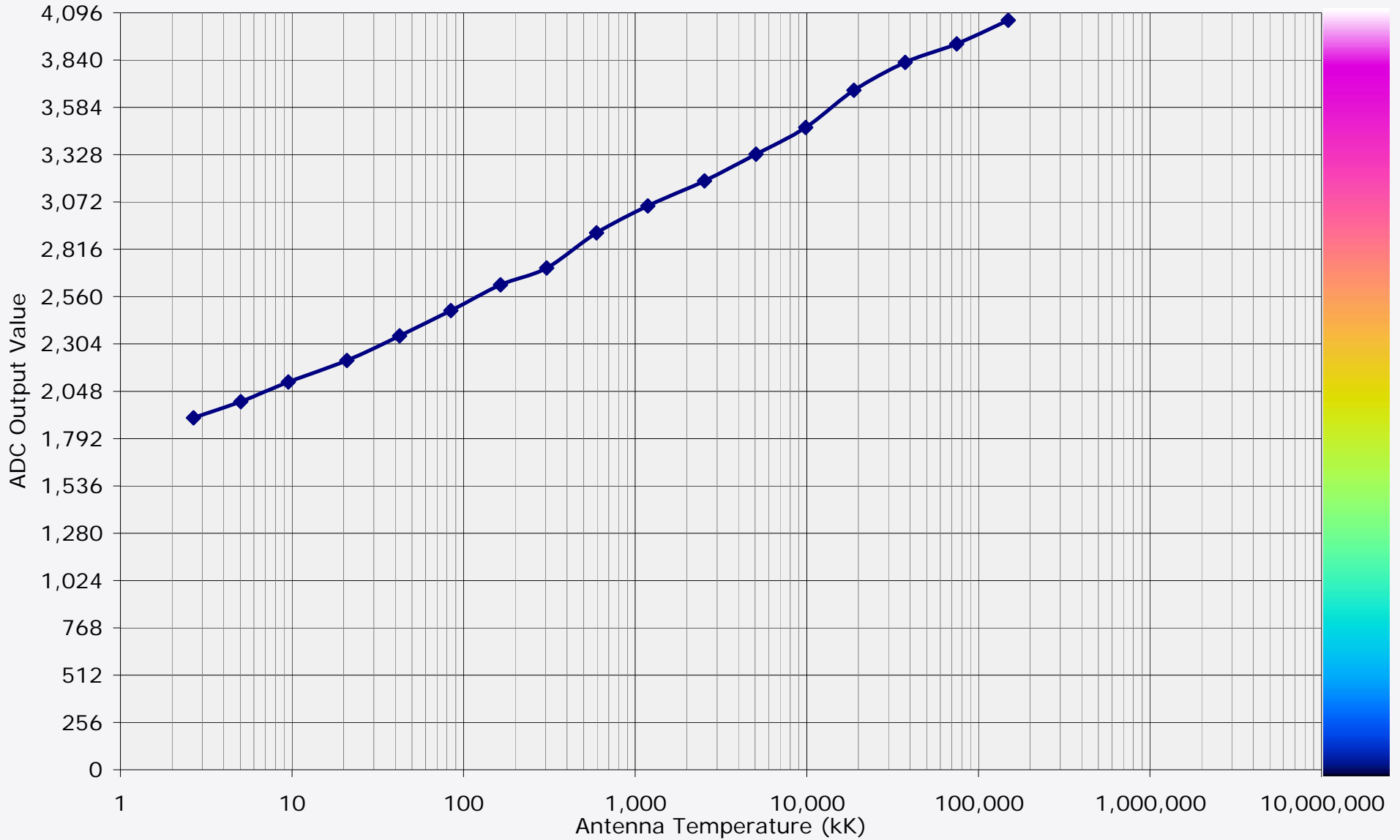
Raw ADC Output Value & Color vs Temperature Observed at Spectrograph Input

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



Raw ADC Output Value & Color vs Antenna Temperature for 3.1 dB Feed Loss

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



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Radio-Sky Spectrograph Configuration:

Offset: 1875

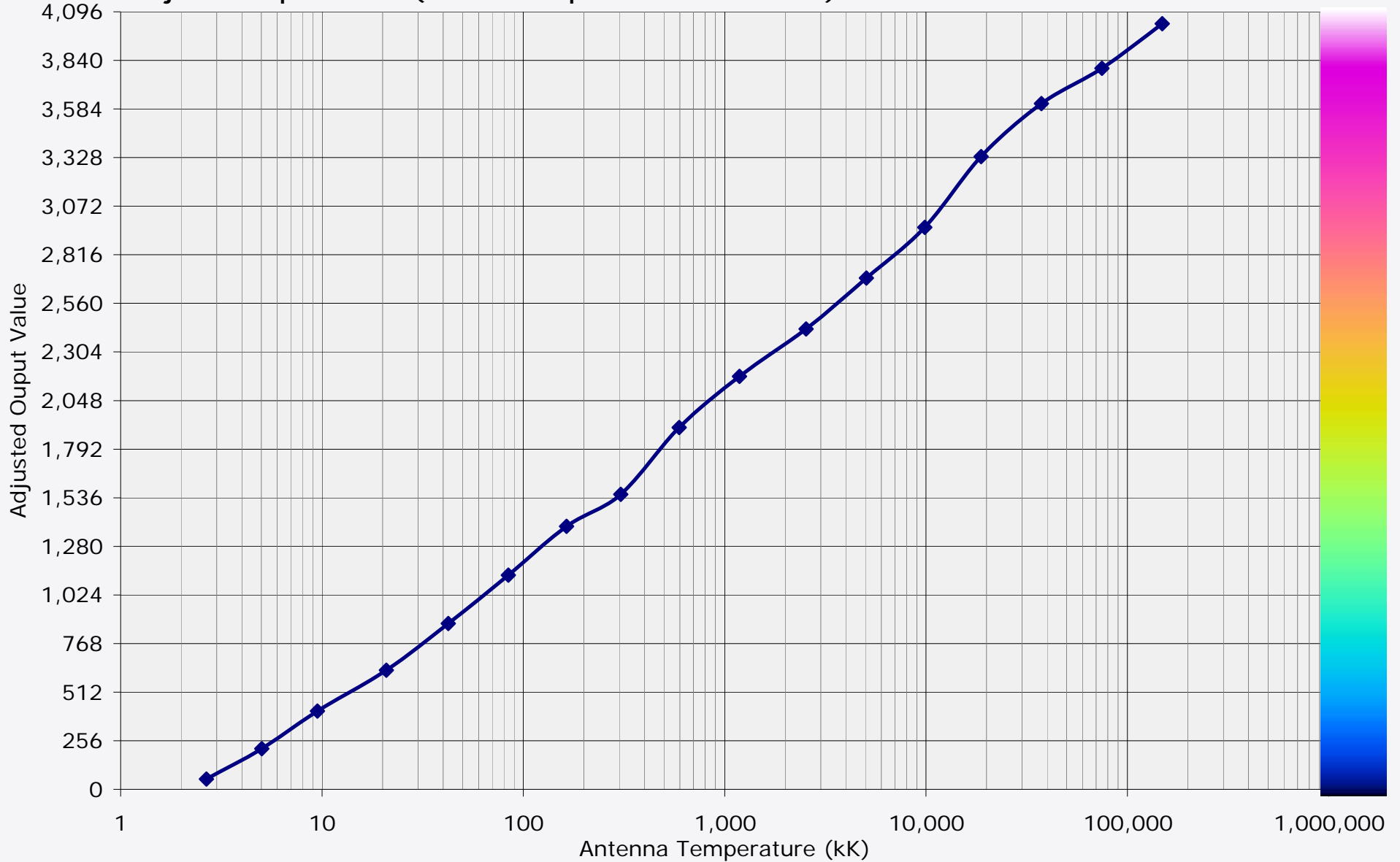
Gain: 1.85

Adjusted Output Value & Color vs Antenna Temperature for 3.1 dB Feed Loss

Color Bar Corresponds to RSS Color Offset = 1875, Color Gain = 1.85

Adjusted Output Value = (Raw ADC Output Value - Color Offset) * Color Gain

SOLAR



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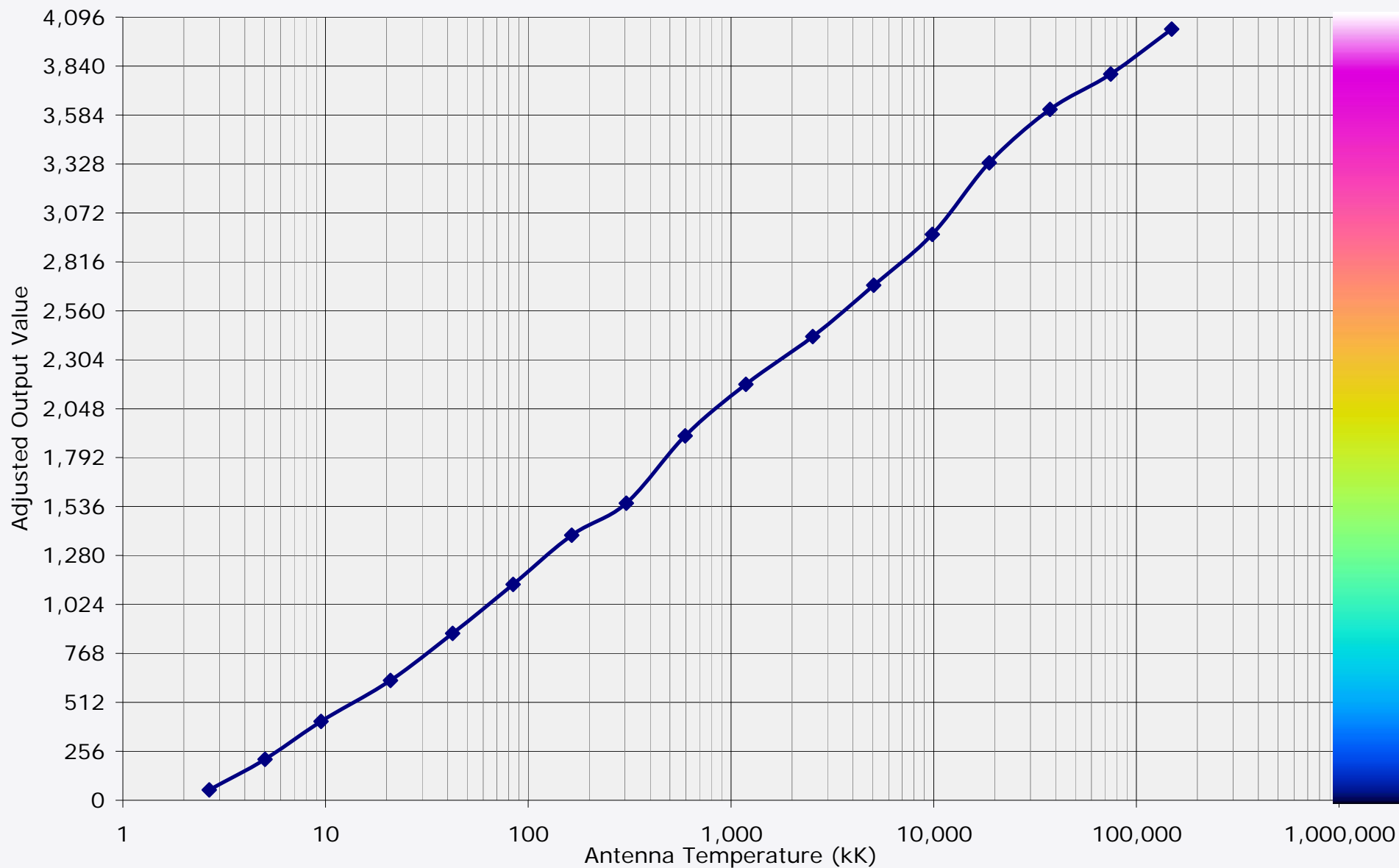
Radio-Sky Spectrograph Configuration:

Offset: 1875

Gain: 1.85

K4LED FSX-11 (12-bit) Spectrograph Step Calibration – 16-Aug-2017
Adjusted Output Value & Color vs Antenna Temperature for 3.1 dB Feed Loss

JUPITER



K4LED FSX-11 (12-bit) Spectrograph Step Calibration

16-Aug-2017 00:19 UTC

Radio-Sky Spectrograph Configuration:

Offset: 0

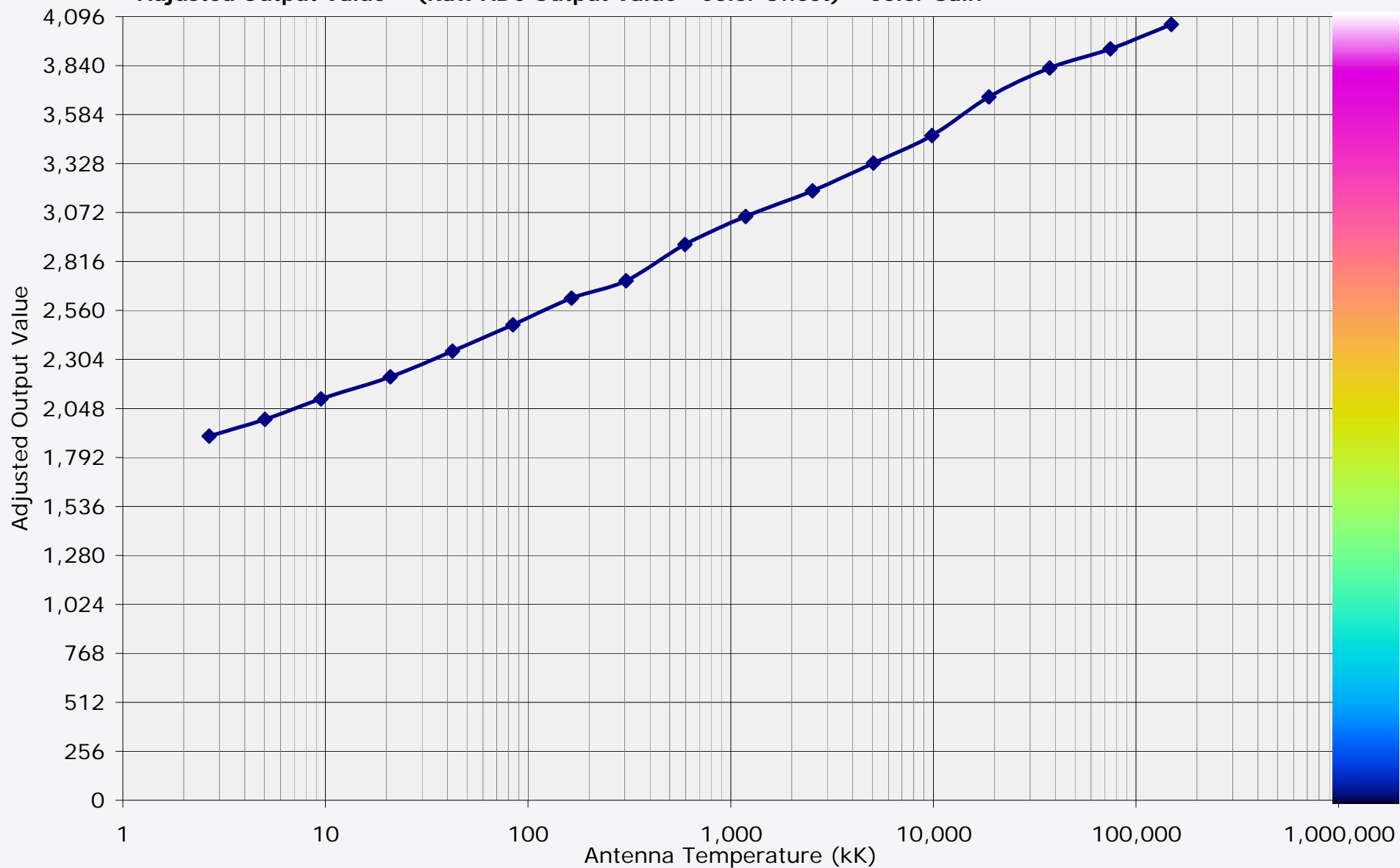
Gain: 1.00

Adjusted Output Value & Color vs Antenna Temperature for 3.1 dB Feed Loss

Color Bar Corresponds to RSS Color Offset = 0, Color Gain = 1.00

Adjusted Output Value = (Raw ADC Output Value - Color Offset) * Color Gain

CUSTOM 1



K4LED FSX-11 (12-bit) Spectrograph Step Calibration

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Radio-Sky Spectrograph Configuration:

Offset: 0

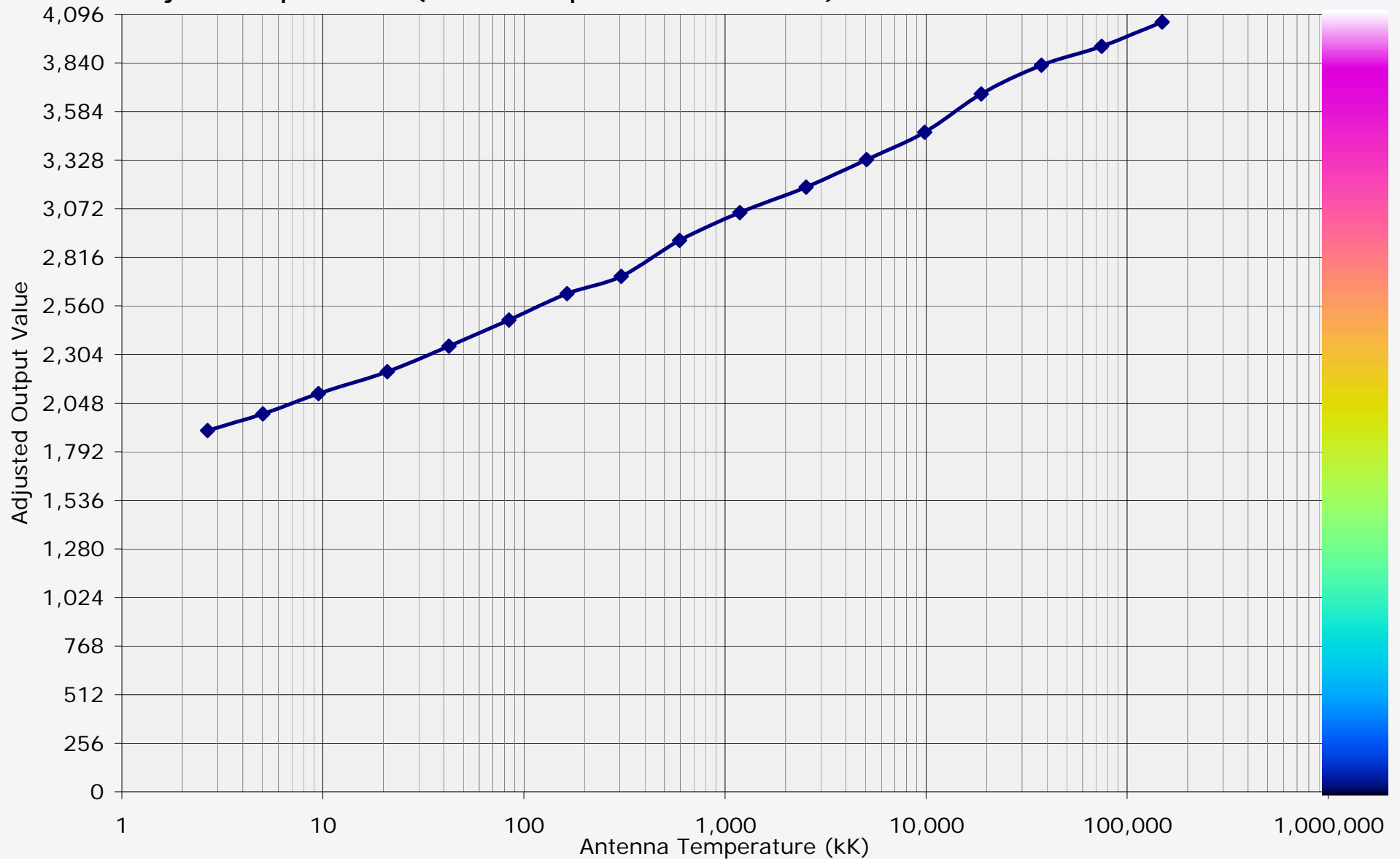
Gain: 1.00

Adjusted Output Value & Color vs Antenna Temperature for 3.1 dB Feed Loss

Color Bar Corresponds to RSS Color Offset = 0, Color Gain = 1.00

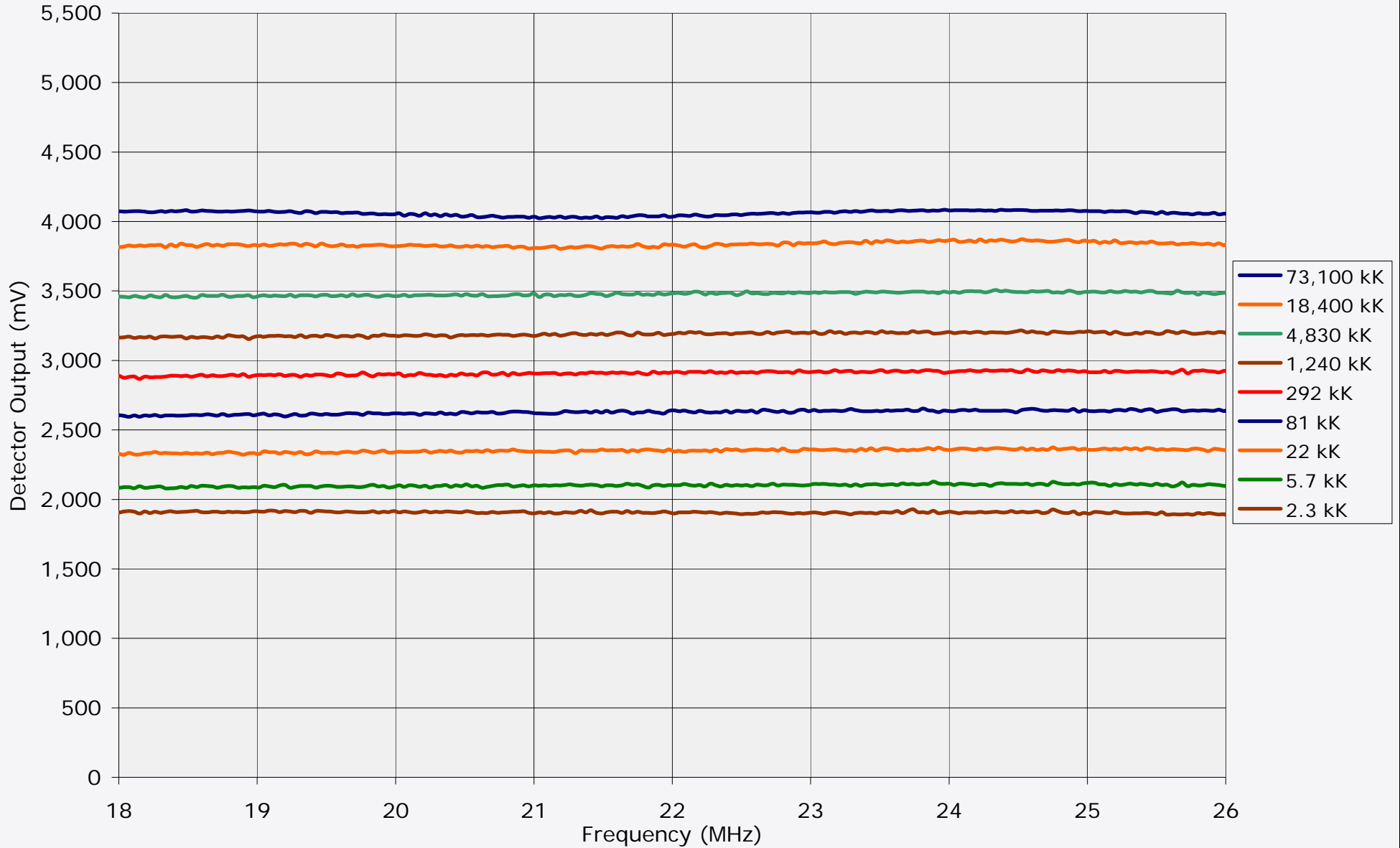
Adjusted Output Value = (Raw ADC Output Value - Color Offset) * Color Gain

CUSTOM 2



Detector Output vs Frequency vs Temperature Observed at Spectrograph Input

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



Detector Response Averaged Over Adjacent 3 dB Calibration Steps

