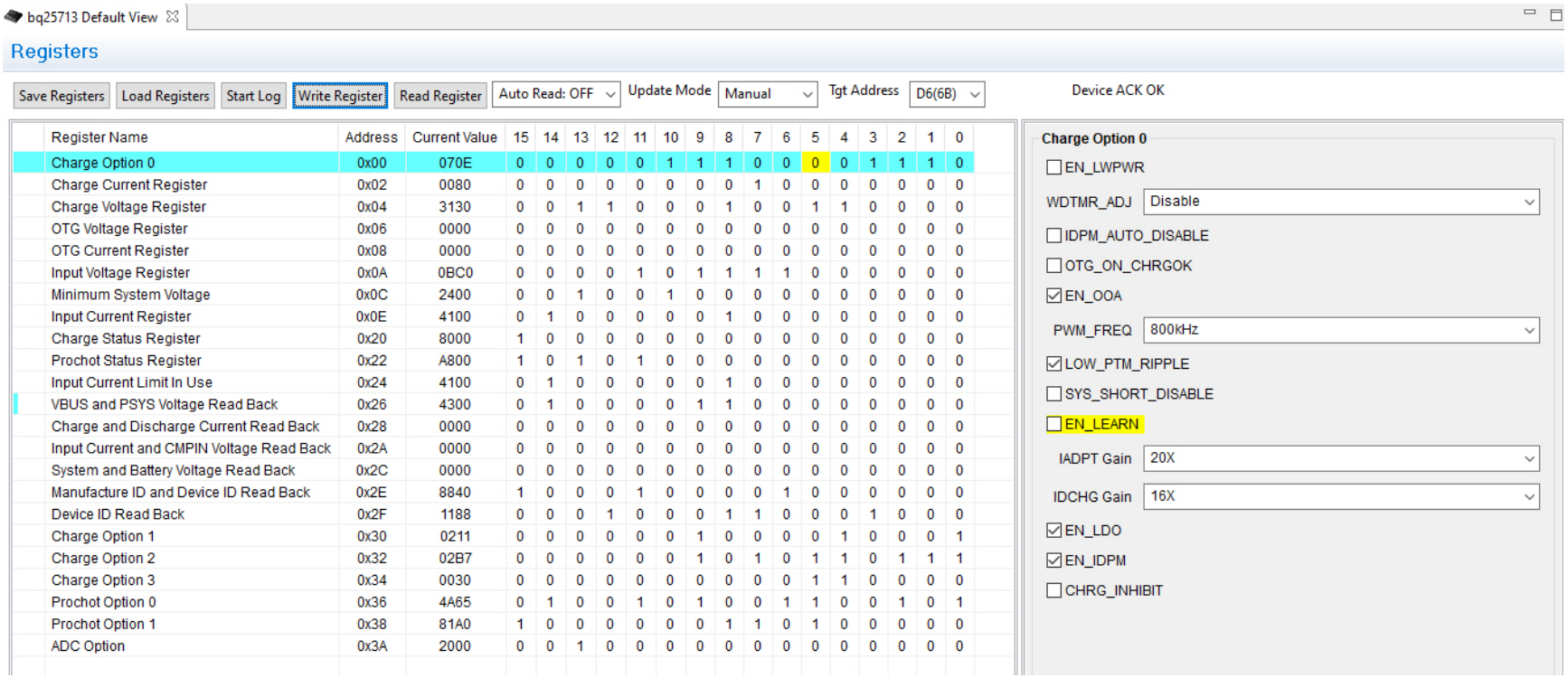


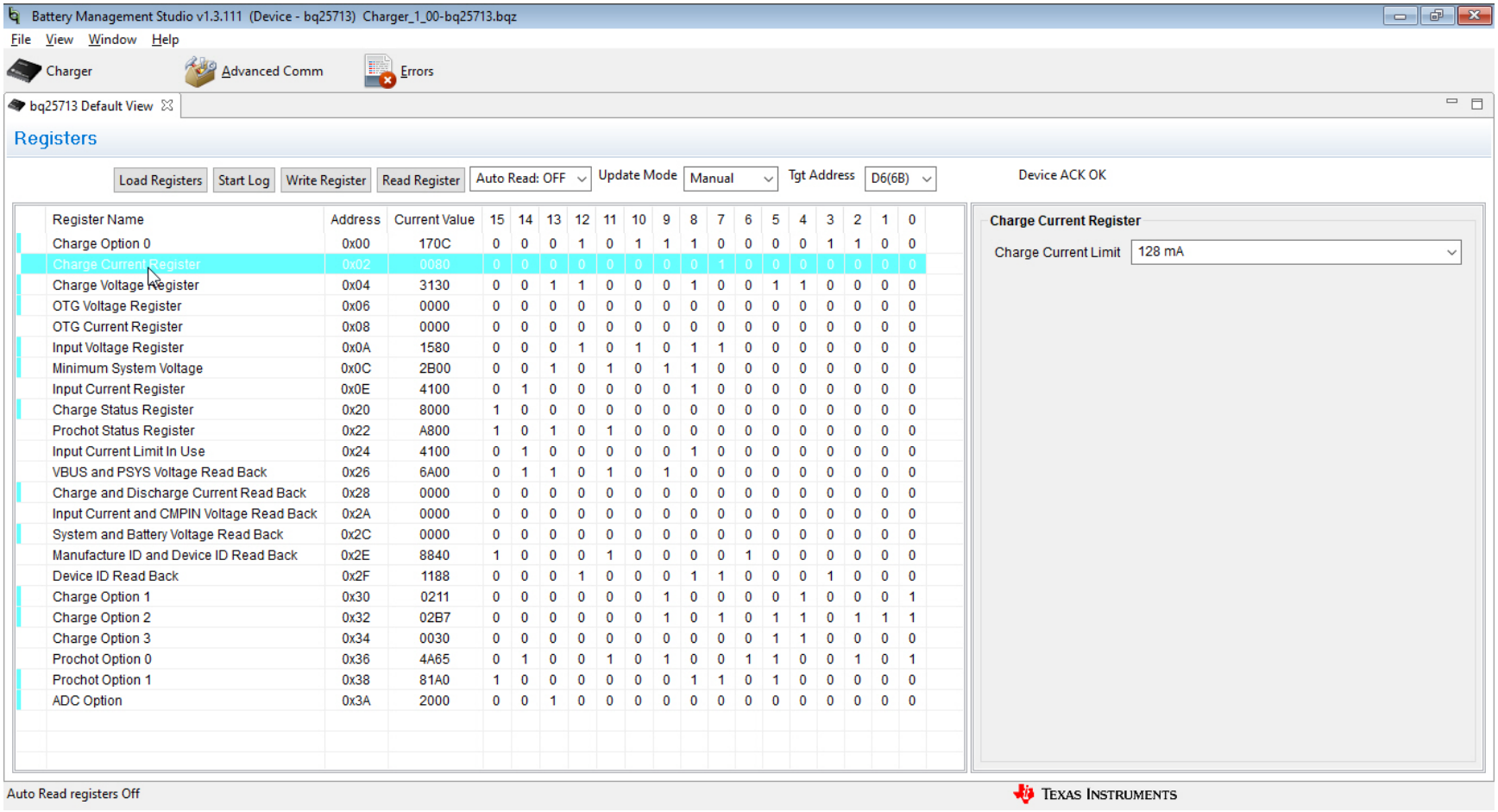
Register Name	Address	Current Value	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Charge Option 0	0x00	070E	0	0	0	0	0	1	1	1	0	0	0	0	1	1	1	0
Charge Current Register	0x02	0080	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Charge Voltage Register	0x04	3130	0	0	1	1	0	0	0	1	0	0	1	1	0	0	0	0
OTG Voltage Register	0x06	0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OTG Current Register	0x08	0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Input Voltage Register	0x0A	0BC0	0	0	0	0	1	0	1	1	1	1	0	0	0	0	0	0
Minimum System Voltage	0x0C	2400	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
Input Current Register	0x0E	4100	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Charge Status Register	0x20	8000	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prochot Status Register	0x22	A800	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
Input Current Limit In Use	0x24	4100	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0
VBUS and PSYS Voltage Read Back	0x26	4300	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0
Charge and Discharge Current Read Back	0x28	0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Input Current and CMPIN Voltage Read Back	0x2A	0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
System and Battery Voltage Read Back	0x2C	0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manufacture ID and Device ID Read Back	0x2E	8840	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0
Device ID Read Back	0x2F	1188	0	0	0	1	0	0	0	1	1	0	0	0	1	0	0	0
Charge Option 1	0x30	0211	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1
Charge Option 2	0x32	02B7	0	0	0	0	0	0	1	0	1	0	1	1	0	1	1	1
Charge Option 3	0x34	0030	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
Prochot Option 0	0x36	4A65	0	1	0	0	1	0	1	0	0	1	1	0	0	1	0	1
Prochot Option 1	0x38	81A0	1	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0
ADC Option	0x3A	2000	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0

EN_LWPWR is disabled

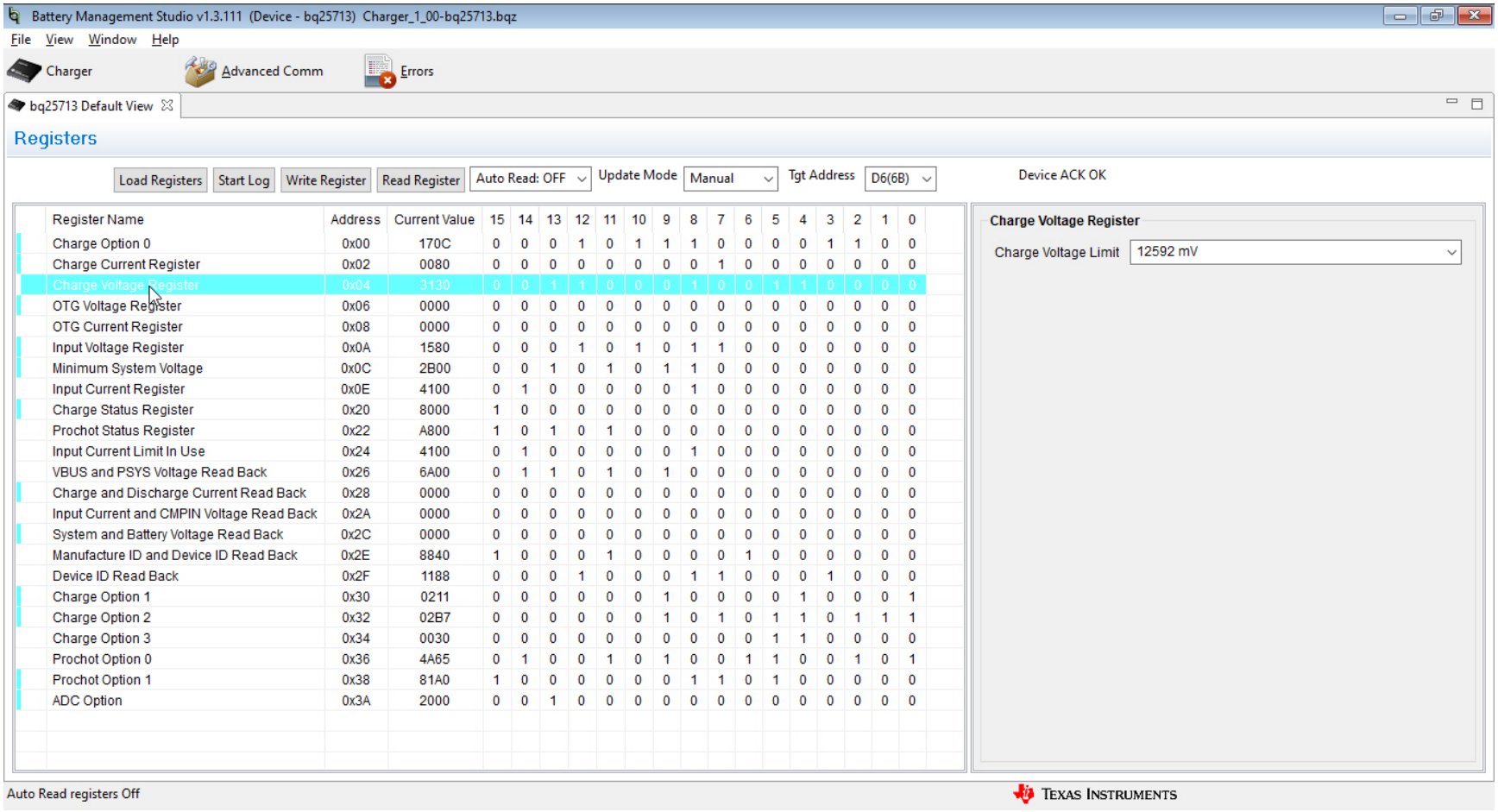
WDT is disabled

IDPM _Auto is disabled

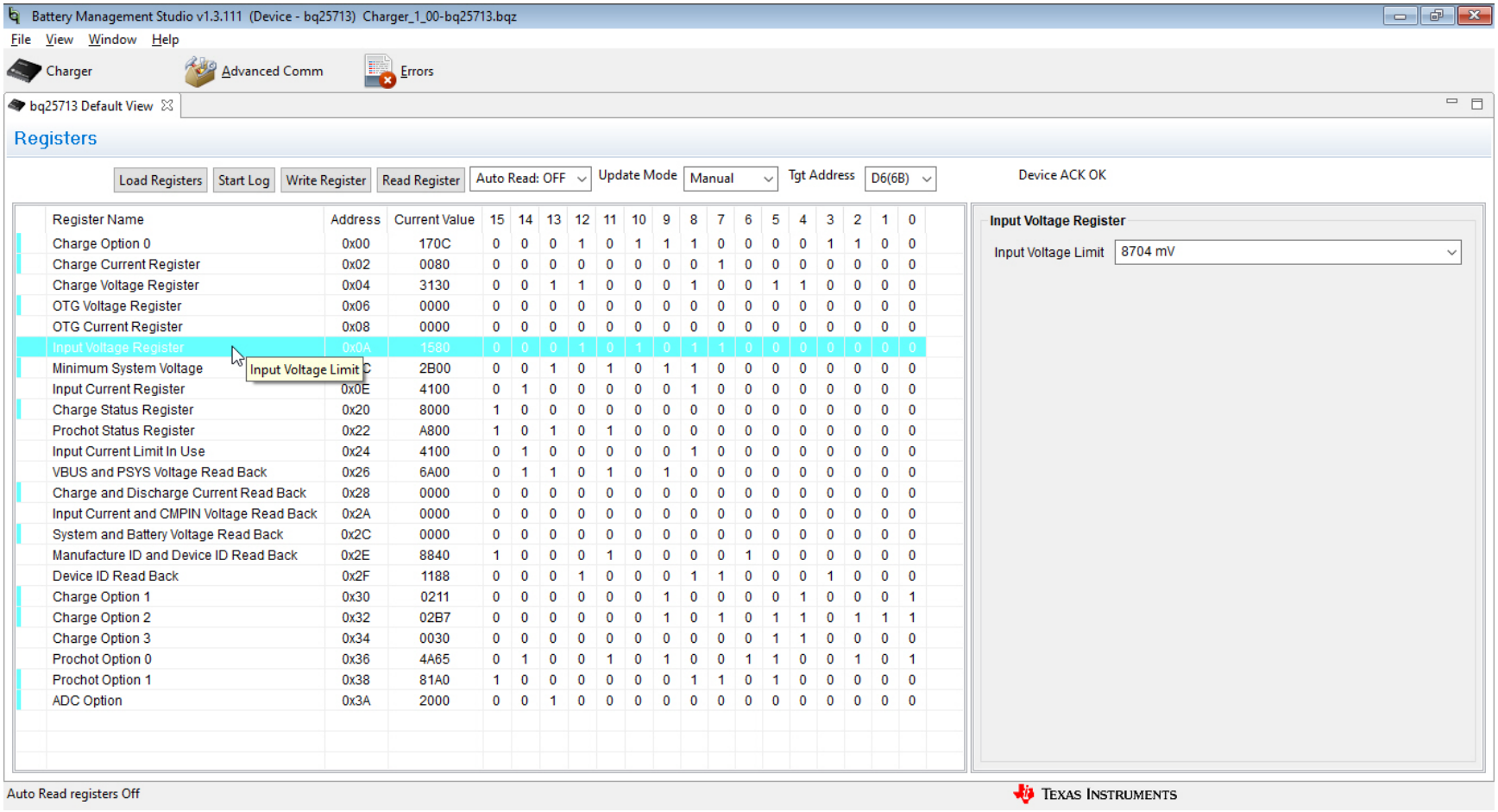
Learn is disabled



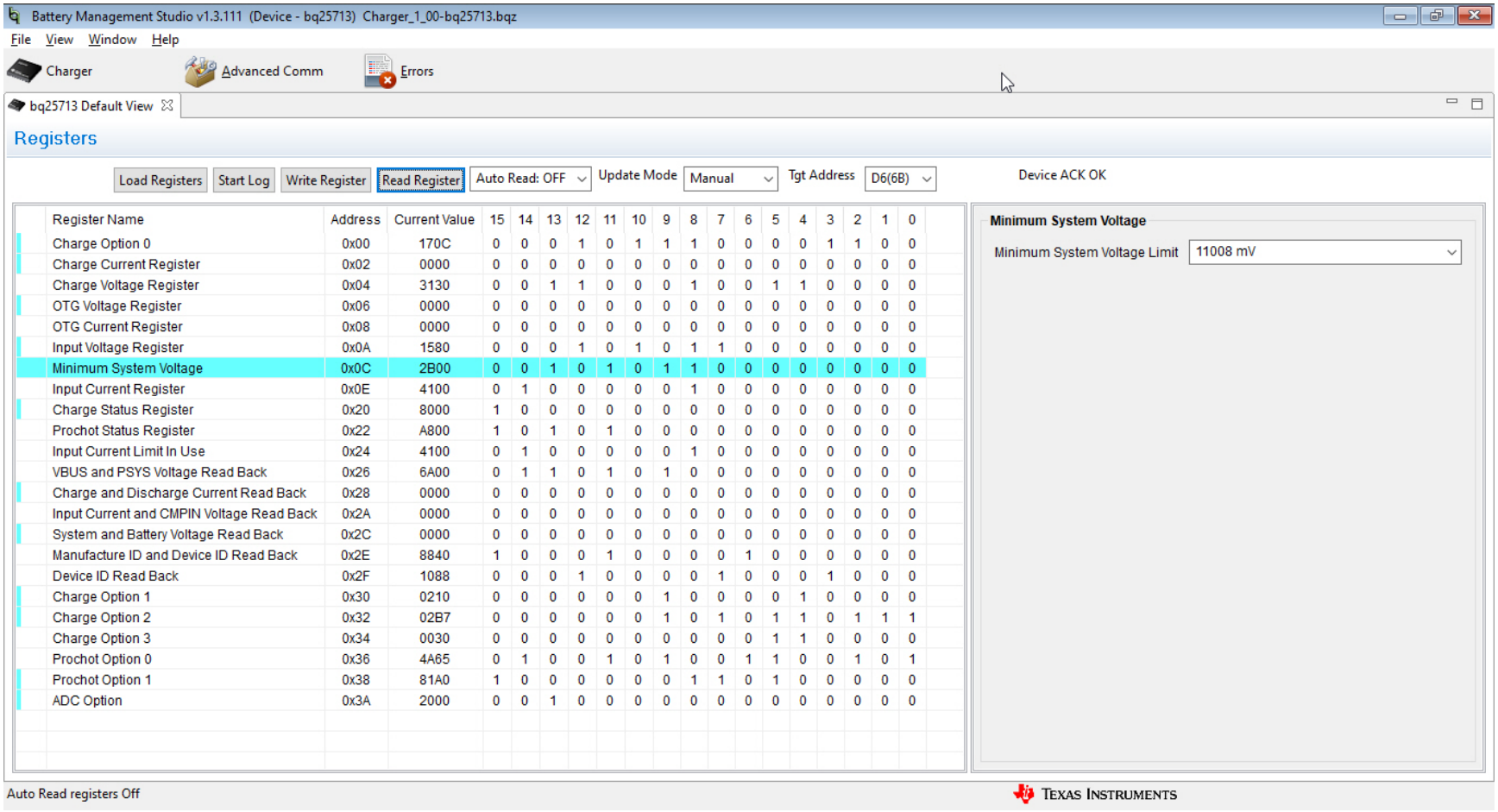
Default charge current limit is 128mA



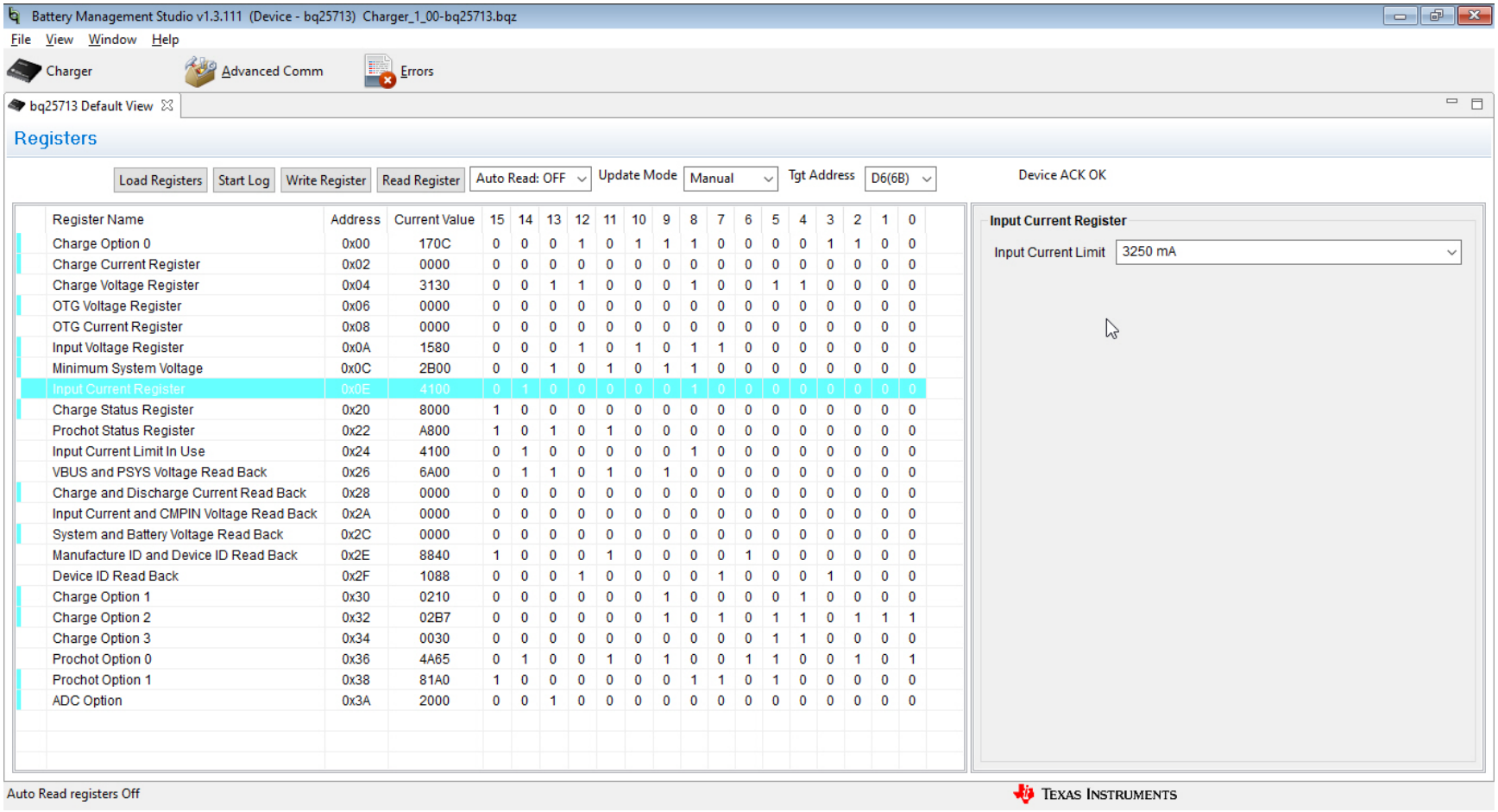
Charge voltage limit is the default 12.6V



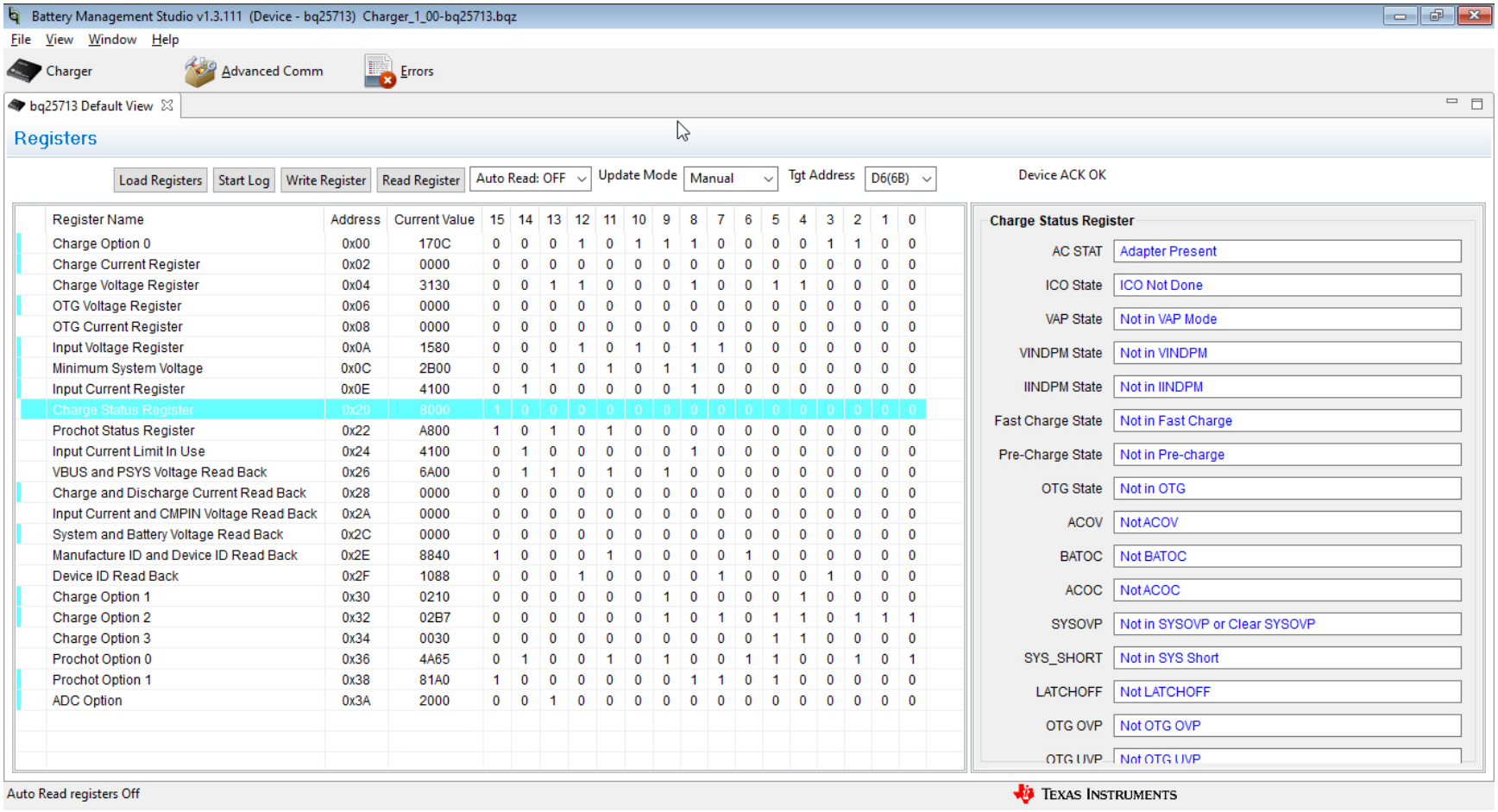
The input voltage limit (set from power on DPM) is 8.7V. Vbus reading later.



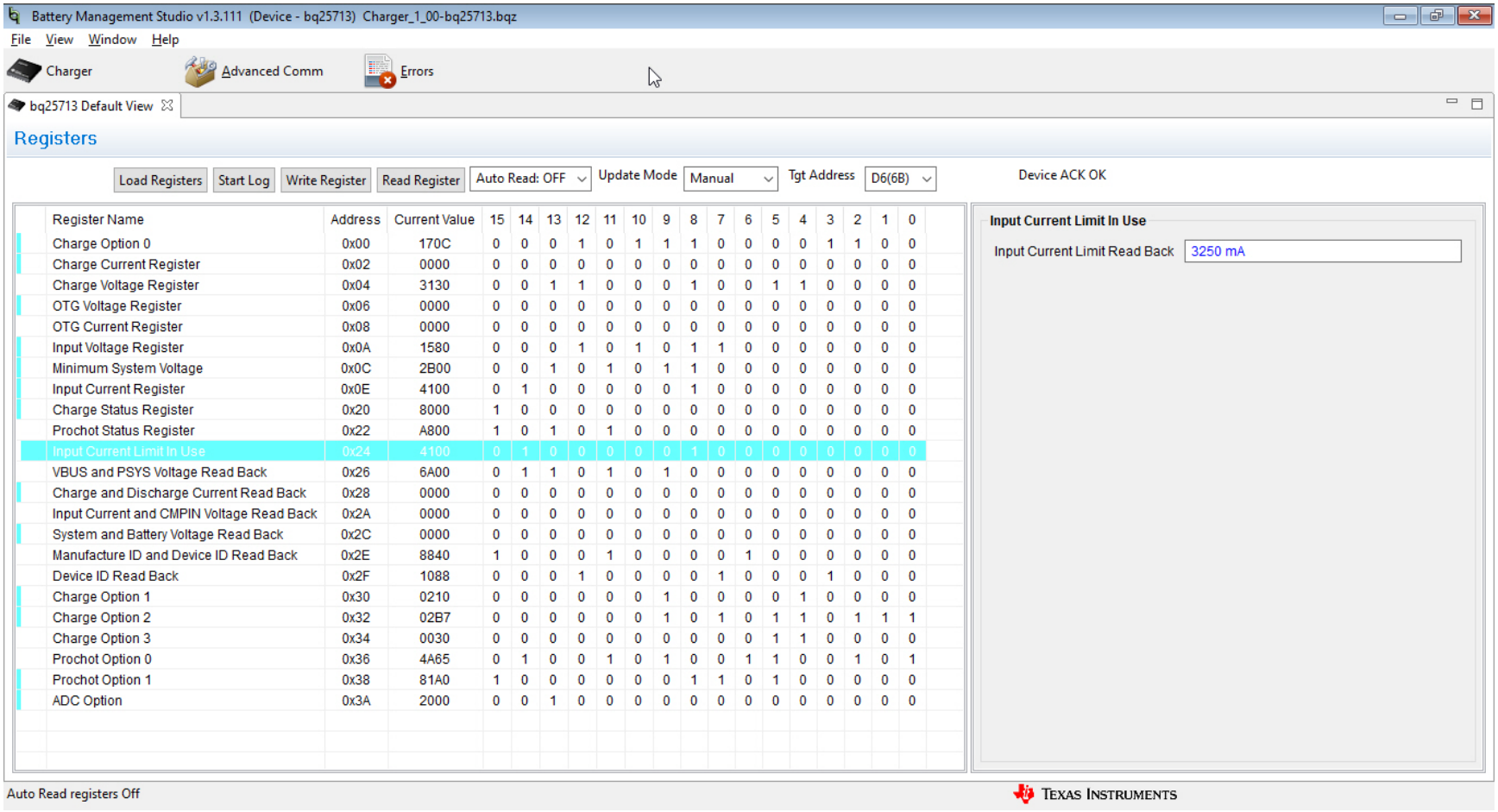
I set the Vsysmin from the default 9.2 to 11.008V. Output was 11V and could source an amp.



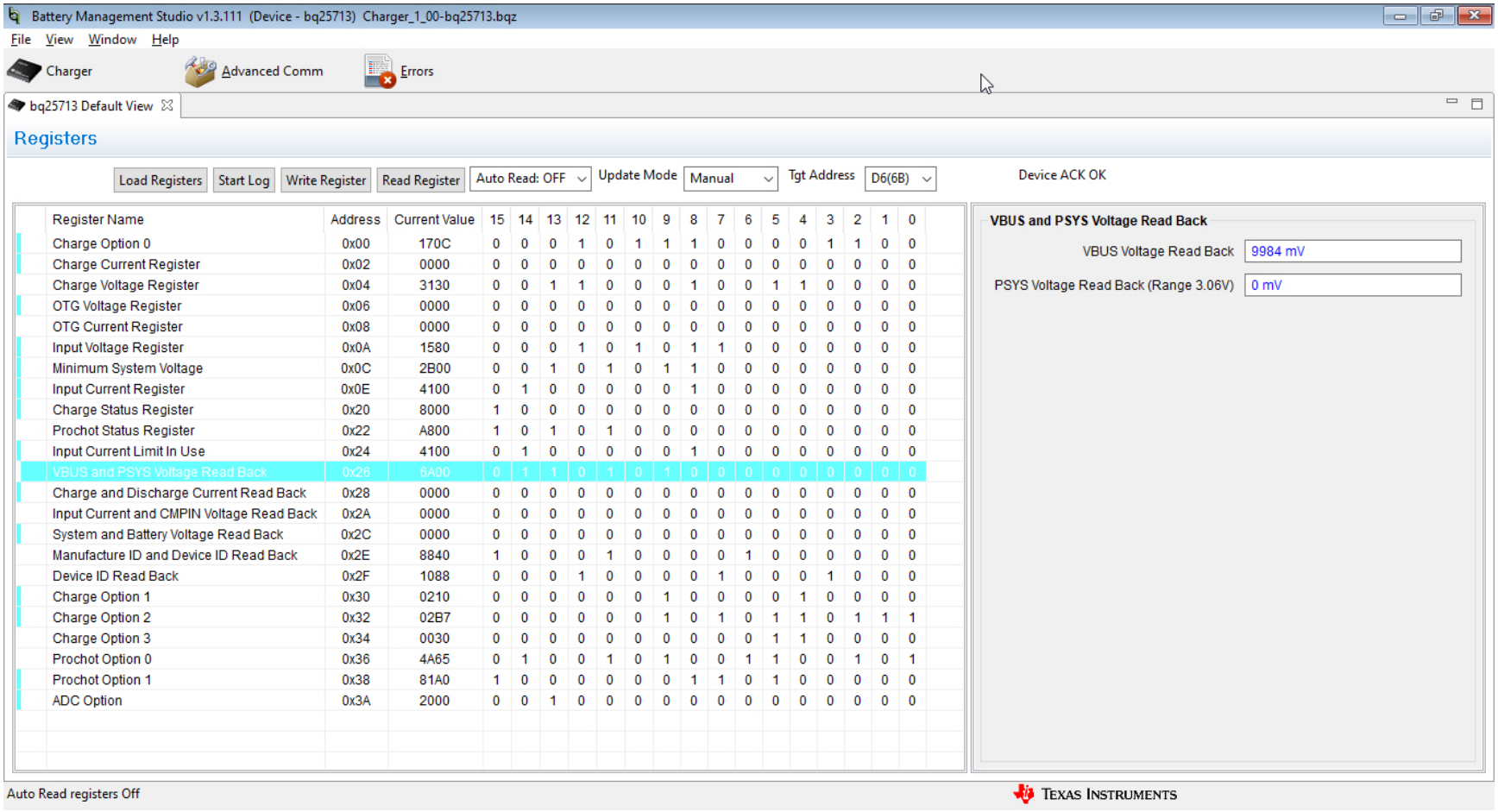
Input current limit is over 3A.



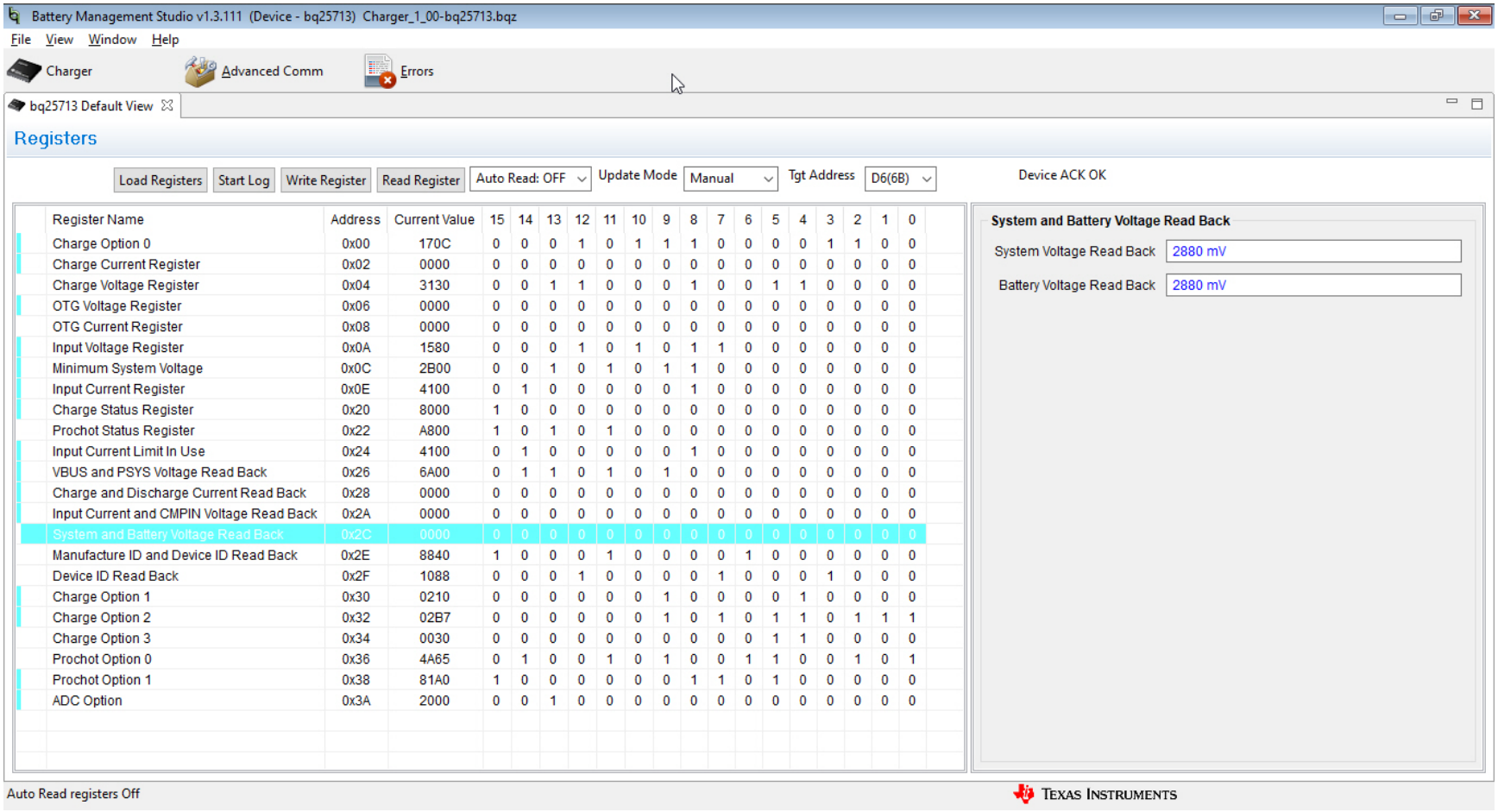
Not doing anything since no battery is present. I am not sure where the battery present can be determined.



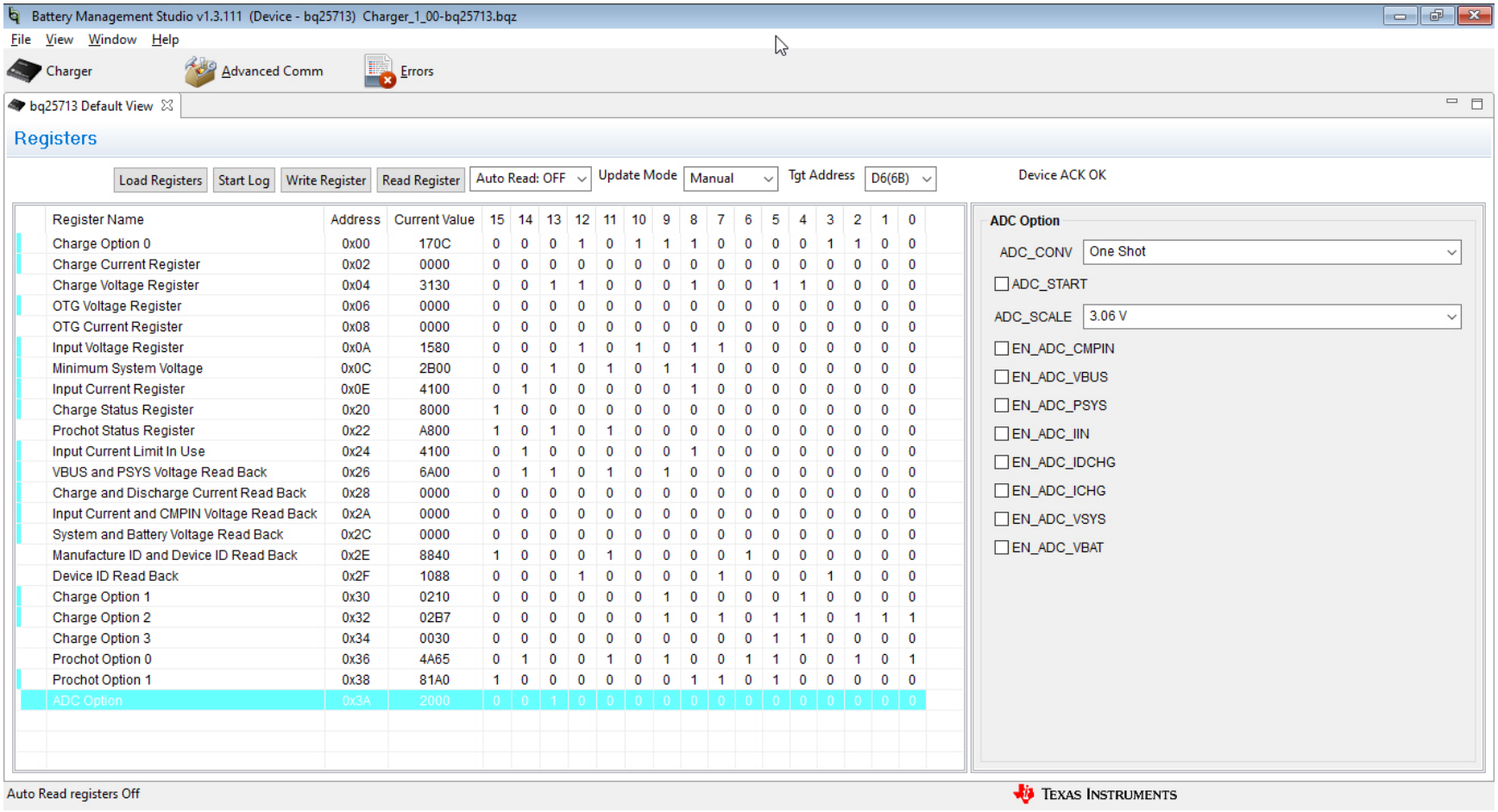
Current limit is use. I have not seen this differ from the Input Current Register.



Vbus readback is 9.98V. With the input voltage reading of 8.704V the difference of 1.28V is typical for the Input Voltage Register setting after DPM does its thing at power up.

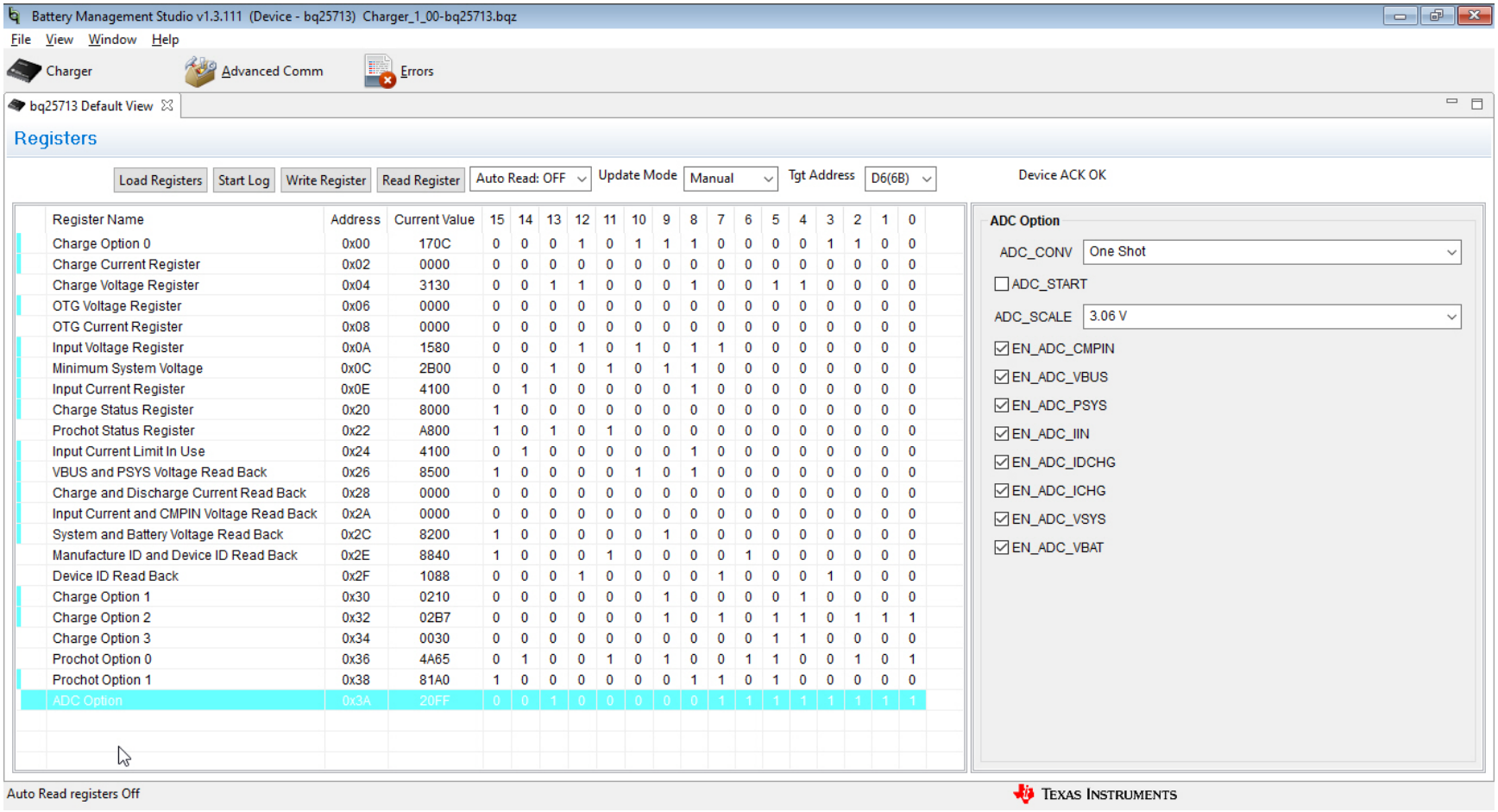


System and battery voltage readback are typical when the ADCs have not been enabled in ADC Option below.

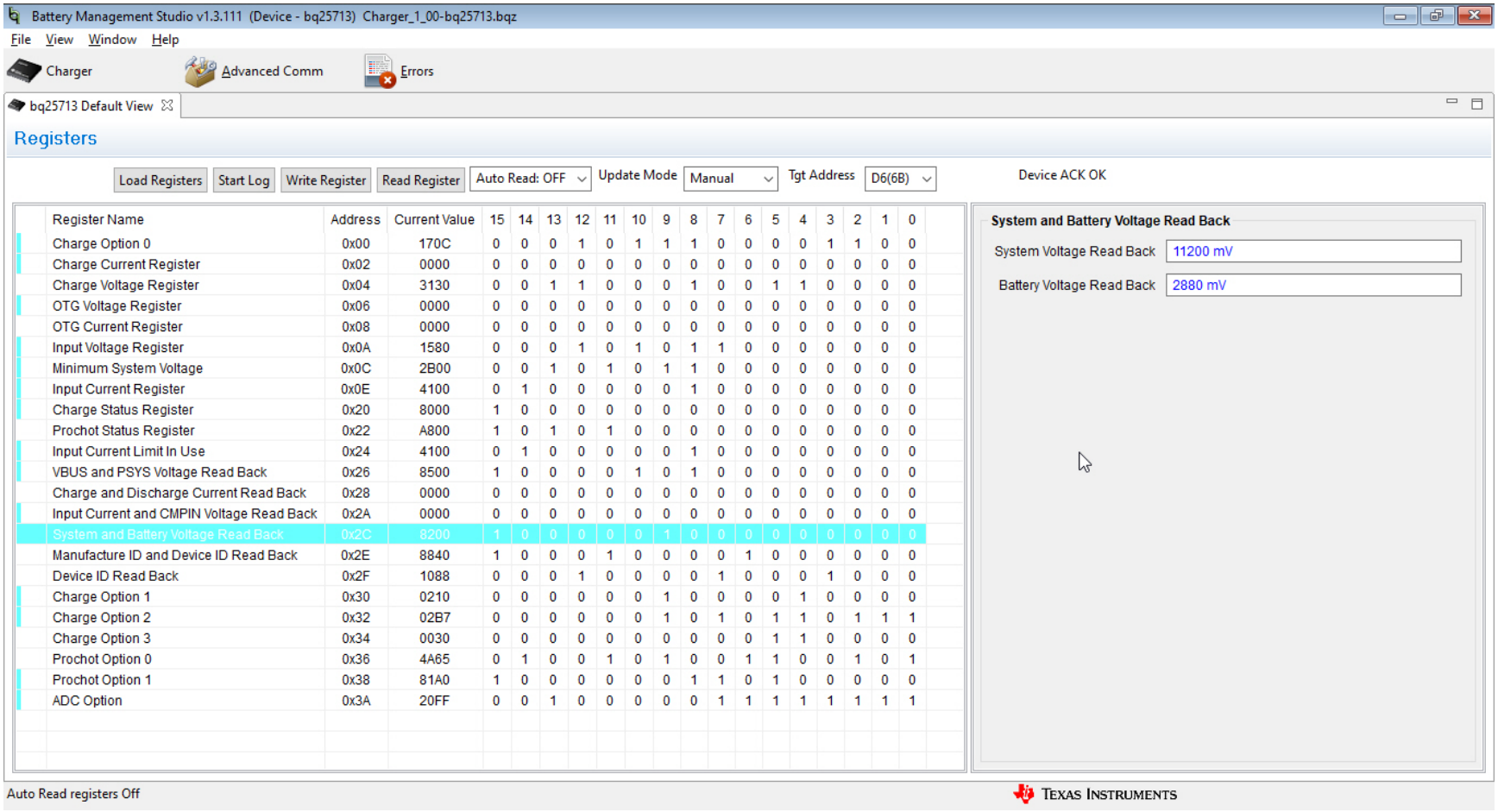


ADC option register in this view is confusing. The ADC start bit clears itself when set. Normally we should set all of the ADC except CMP and PSYS as enabled.

Not sure about one shot. The other choice is every 1s. Is this a BQstudio thing or built into the charger?



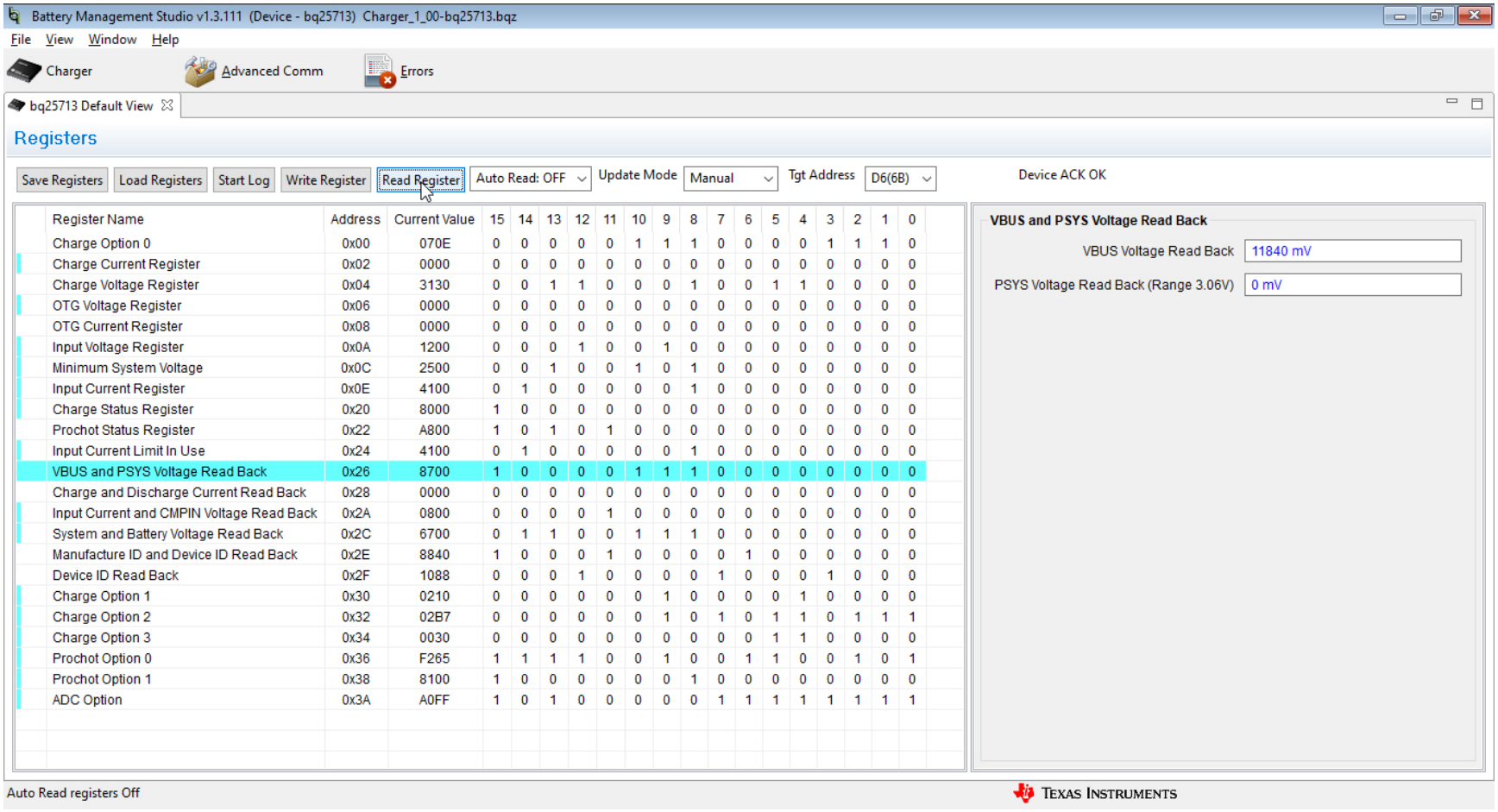
When set the System and Battery voltage can be read.



System voltage now reads back close to what was set as Vsysmin.

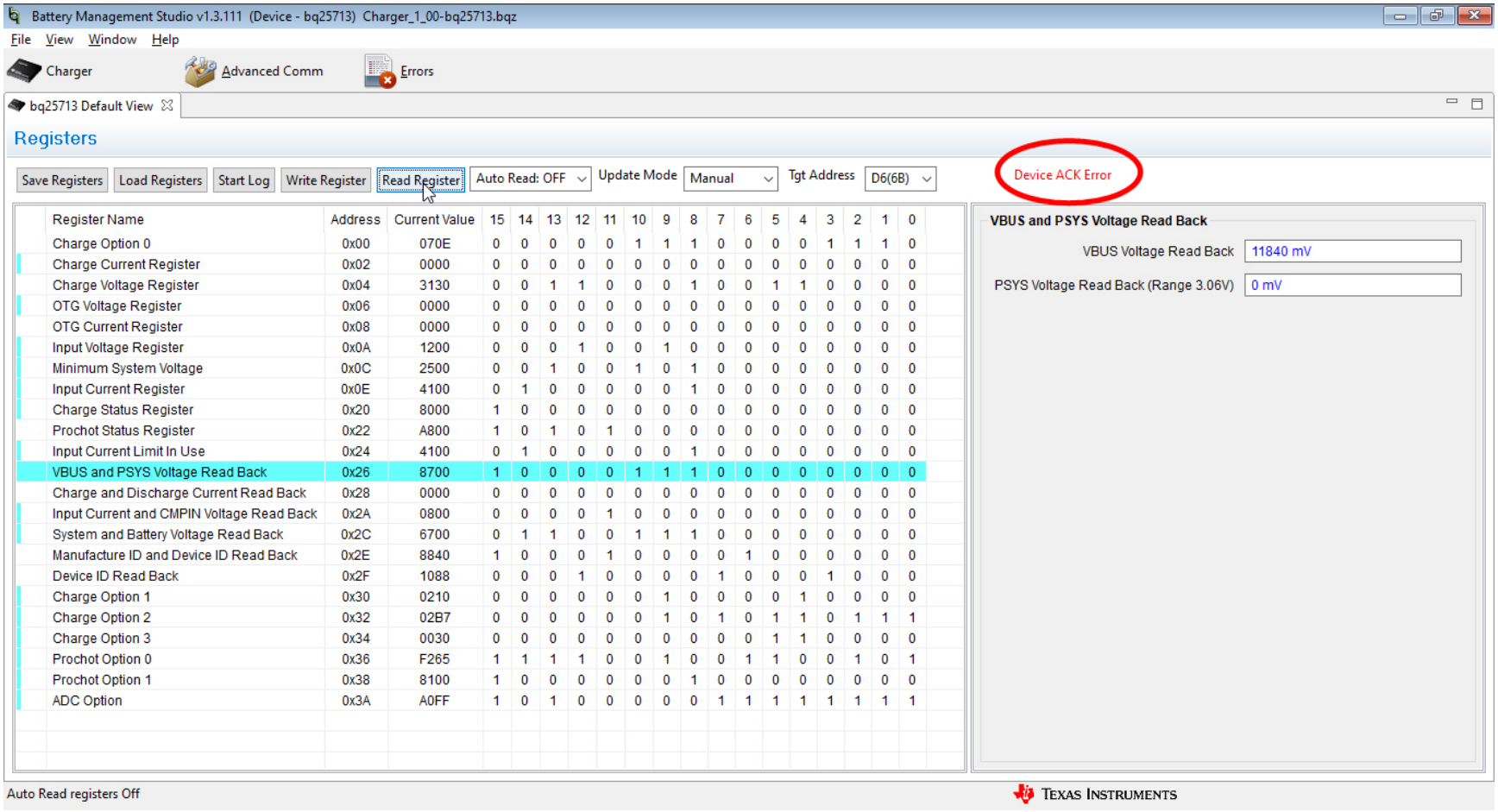
Battery voltage at its default when no battery is present. I have not tried loading this to see if it goes to zero.

Loss of I2C at Higher Input Voltages



Register Name	Address	Current Value	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Charge Option 0	0x00	070E	0	0	0	0	0	1	1	1	0	0	0	0	1	1	1	0
Charge Current Register	0x02	0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Charge Voltage Register	0x04	3130	0	0	1	1	0	0	0	1	0	0	1	1	0	0	0	0
OTG Voltage Register	0x06	0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OTG Current Register	0x08	0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Input Voltage Register	0x0A	1200	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0
Minimum System Voltage	0x0C	2500	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0
Input Current Register	0x0E	4100	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Charge Status Register	0x20	8000	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prochot Status Register	0x22	A800	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
Input Current Limit In Use	0x24	4100	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0
VBUS and PSYS Voltage Read Back	0x26	8700	1	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0
Charge and Discharge Current Read Back	0x28	0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Input Current and CMPIN Voltage Read Back	0x2A	0800	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
System and Battery Voltage Read Back	0x2C	6700	0	1	1	0	0	1	1	1	0	0	0	0	0	0	0	0
Manufacture ID and Device ID Read Back	0x2E	8840	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0
Device ID Read Back	0x2F	1088	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	0
Charge Option 1	0x30	0210	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0
Charge Option 2	0x32	02B7	0	0	0	0	0	0	1	0	1	0	1	1	0	1	1	1
Charge Option 3	0x34	0030	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
Prochot Option 0	0x36	F265	1	1	1	1	0	0	1	0	0	1	1	0	0	1	0	1
Prochot Option 1	0x38	8100	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
ADC Option	0x3A	A0FF	1	0	1	0	0	0	0	0	1	1	1	1	1	1	1	1

Increasing the input voltage and watching Vbus I2C is working (DEVICE ACK OK) but as Vbus gets a bit higher by 10mV the I2C stops.



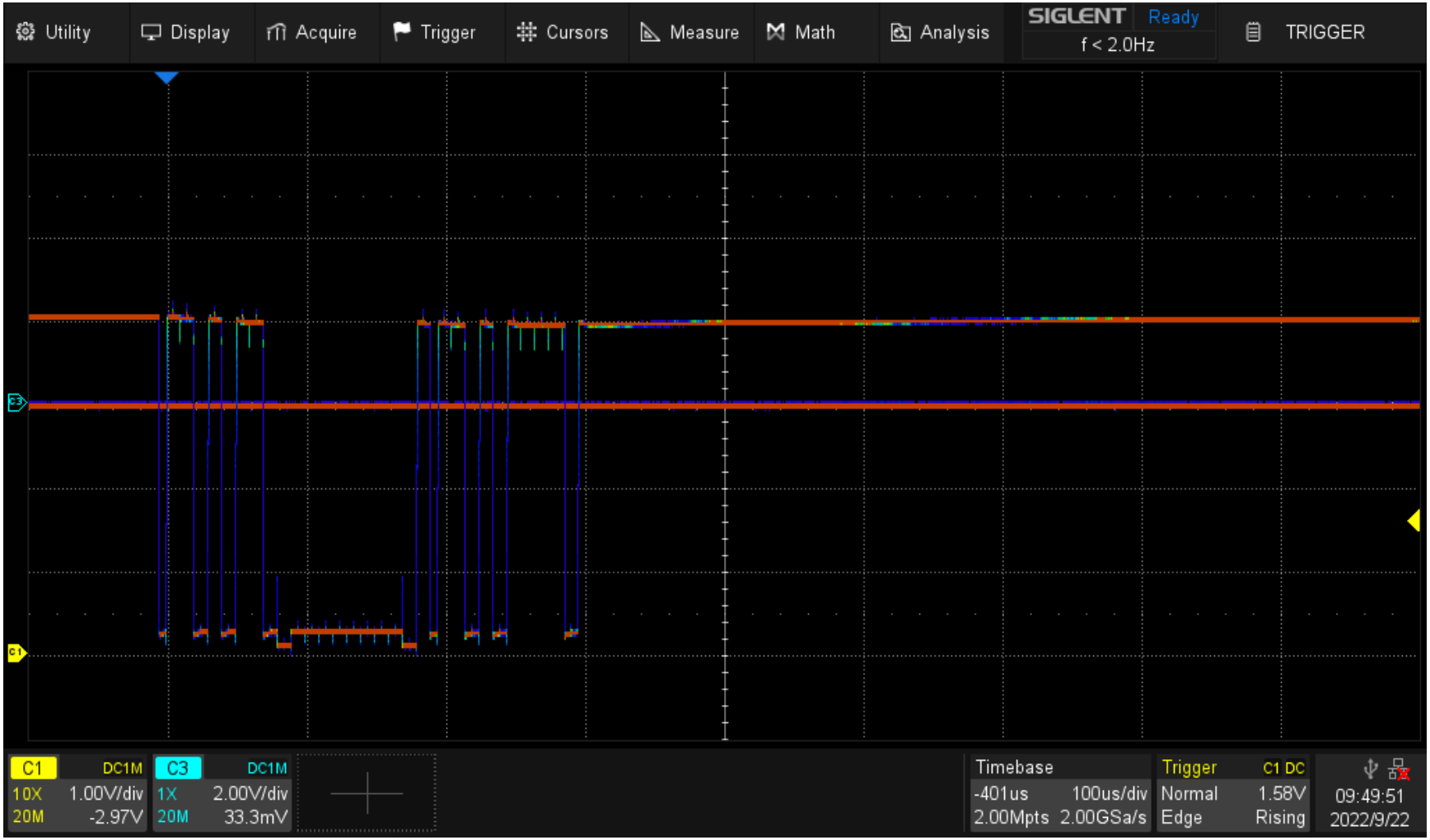
I increased the bench supply by 10mV from the previous screen shot and get this. Voltage readback is the same as the previous reading since the I2C failed. Vbus was 11.92V measured at the caps.

The same thing happens if you use the default 9.2V for Vsysmin. I can't find the register that might control this. I2C data looks good.

Cable length to EV2400?

Termination resistance?

When the data ACK fails nothing comes back. The address is sent then nothing.



When successful all of the registers come back

I2C	Time	Address	R/W	Data
1	0.00000s	0x6B	W	0x00 26
2	17.0040ms	0x6B	W	0x05 24
3	31.0010ms	0x6B	W	0x08 C3
4	46.0070ms	0x6B	W	0x09 05
5	63.0010ms	0x6B	W	0x0A A3
6	77.0010ms	0x6B	W	0x0D 4B
7	94.0030ms	0x6B	W	0x0E 3D
8	109.004ms	0x6B	W	0x0F 82
9	125.007ms	0x6B	W	0x10 80
10	140.007ms	0x6B	W	0x11 40
11	157.002ms	0x6B	W	0x12 00
12	172.001ms	0x6B	W	0x13 41
13	188.005ms	0x6B	W	0x14 16
14	204.003ms	0x6B	W	0x15 AA
15	218.007ms	0x6B	W	0x16 C0
16	234.002ms	0x6B	W	0x17 7A
17	250.002ms	0x6B	W	0x18 54
18	265.999ms	0x6B	W	0x1B 0F
19	282.008ms	0x6B	W	0x1C 0A
20	298.003ms	0x6B	W	0x1D 00
21	312.000ms	0x6B	W	0x1E 50
22	328.998ms	0x6B	W	0x1F 10
23	345.009ms	0x6B	W	0x20 00
24	359.003ms	0x6B	W	0x21 00
25	375.007ms	0x6B	W	0x22 00
26	392.002ms	0x6B	W	0x23 00
27	406.008ms	0x6B	W	0x24 00

28	423.004ms	0x6B	W	0x25 00
29	438.006ms	0x6B	W	0x26 00
30	452.005ms	0x6B	W	0x27 00
31	468.007ms	0x6B	W	0x28 00
32	485.003ms	0x6B	W	0x29 00
33	499.015ms	0x6B	W	0x2A 00
34	516.009ms	0x6B	W	0x2B 00
35	531.005ms	0x6B	W	0x2C 00
36	546.005ms	0x6B	W	0x2D 00
37	562.008ms	0x6B	W	0x2E B0
38	579.006ms	0x6B	W	0x2F 00
39	593.006ms	0x6B	W	0x30 00
40	609.011ms	0x6B	W	0x47 00
41	625.006ms	0x6B	W	0x48 08
42	641.013ms	0x6B	W	0x01 04 EC
43	657.017ms	0x6B	W	0x03 00 64
44	671.013ms	0x6B	W	0x06 00 8E
45	687.015ms	0x6B	W	0x0B 00 DC
46	704.018ms	0x6B	W	0x19 00 8E
47	719.021ms	0x6B	W	0x31 00 69
48	735.015ms	0x6B	W	0x33 00 00
49	751.015ms	0x6B	W	0x35 11 88
50	766.019ms	0x6B	W	0x37 11 8E
51	781.030ms	0x6B	W	0x39 11

				8E
52	798.019ms	0x6B	W	0x3B 00 B4
53	813.016ms	0x6B	W	0x3D 31 1C
54	828.023ms	0x6B	W	0x3F 02 24
55	843.018ms	0x6B	W	0x41 00 30
56	859.014ms	0x6B	W	0x43 00 00
57	876.017ms	0x6B	W	0x45 00 00

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