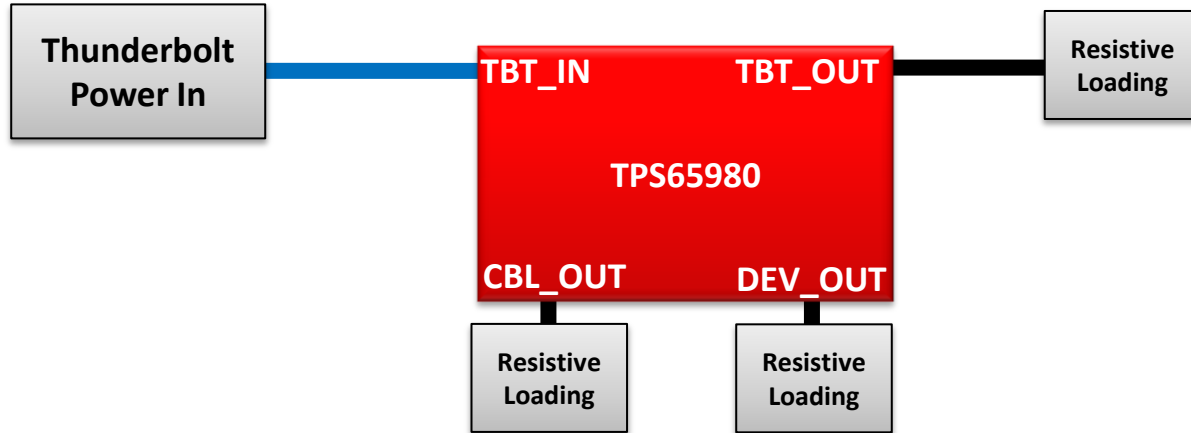


# TPS65980

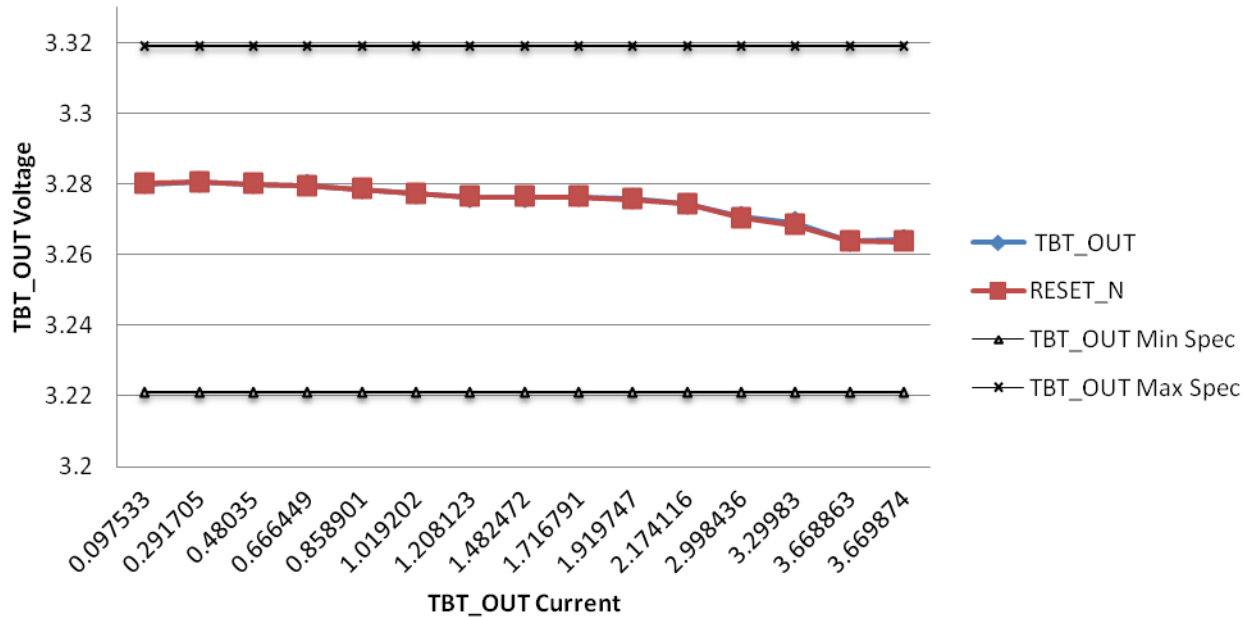
## System Testing – Power Loading & Sequencing

# TPS65980 System Power Loading Testing Setup



# TBT\_OUT Load Testing

## DUT19: TBT\_OUT vs TBT\_OUT Current

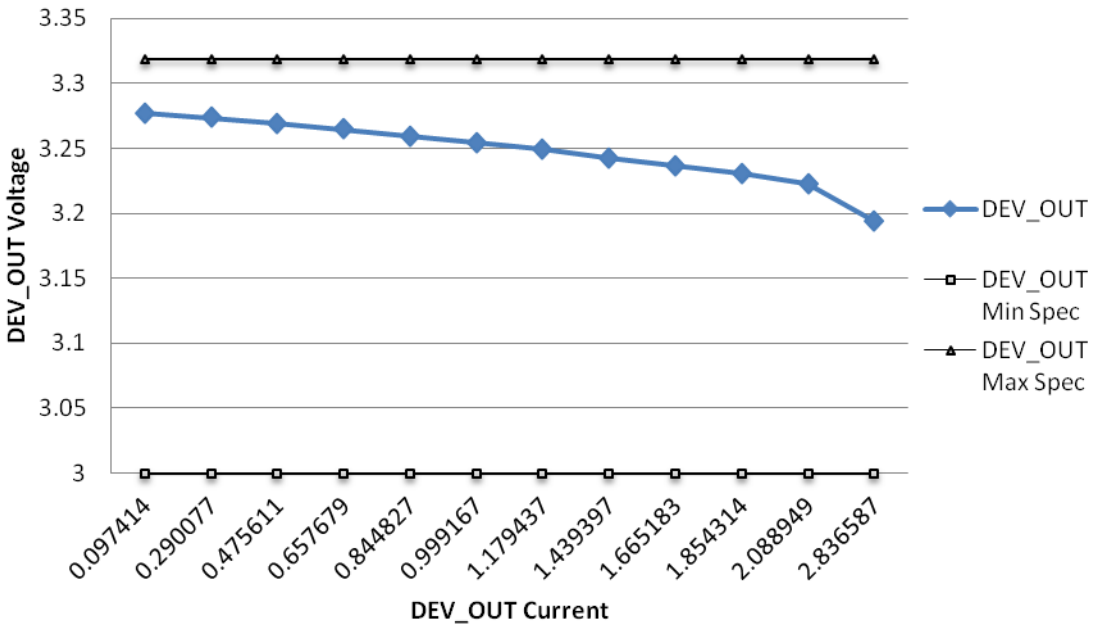


- **TBT\_OUT = 3.26V @ 3.67A**

TBT_OUT Current (I)	TBT_OUT (V)	CBL_OUT (V)	DEV_OUT (V)	RESET_N (V)
0.098	3.280	3.280	3.280	3.280
0.292	3.280	3.281	3.280	3.281
0.480	3.280	3.280	3.280	3.280
0.666	3.280	3.280	3.280	3.280
0.859	3.279	3.279	3.279	3.279
1.019	3.277	3.277	3.277	3.277
1.208	3.276	3.276	3.276	3.276
1.482	3.276	3.276	3.276	3.276
1.717	3.276	3.276	3.276	3.276
1.920	3.276	3.276	3.276	3.276
2.174	3.274	3.274	3.274	3.274
2.998	3.271	3.271	3.271	3.271
3.300	3.269	3.270	3.269	3.268
3.669	3.264	3.264	3.263	3.264

# DEV\_OUT Load Testing

DEV\_OUT vs DEV\_OUT Current

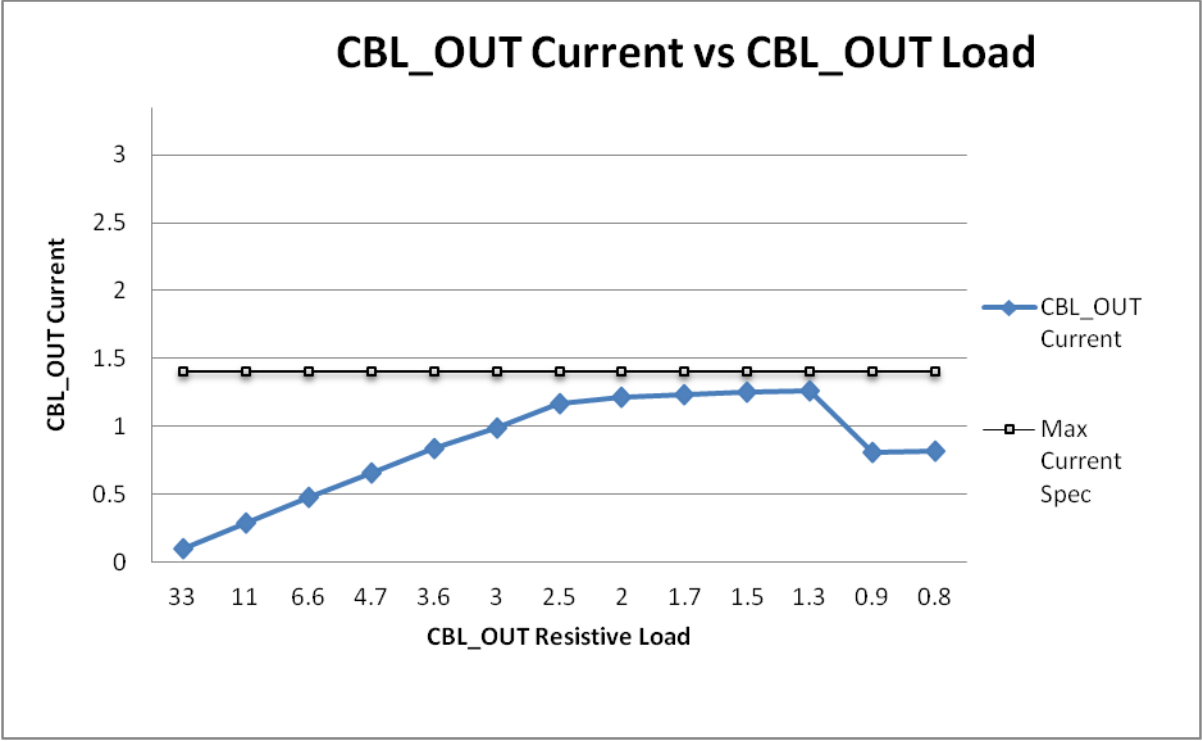


- DEV\_OUT = 3.19V @ 2.83A

DEV_OUT Current (I)	TBT_OUT (V)	CBL_OUT (V)	DEV_OUT (V)	RESET_N (V)
0.097	3.279	3.279	3.277	3.279
0.290	3.279	3.278	3.274	3.278
0.476	3.278	3.276	3.269	3.277
0.658	3.278	3.275	3.265	3.275
0.845	3.277	3.273	3.260	3.273
0.999	3.275	3.270	3.255	3.271
1.179	3.274	3.268	3.249	3.269
1.439	3.273	3.266	3.243	3.267
1.665	3.273	3.265	3.237	3.266
1.854	3.272	3.263	3.231	3.264
2.089	3.270	3.260	3.223	3.261
2.837	3.265	3.249	3.194	3.252

# CBL\_OUT Load Current Limit Testing

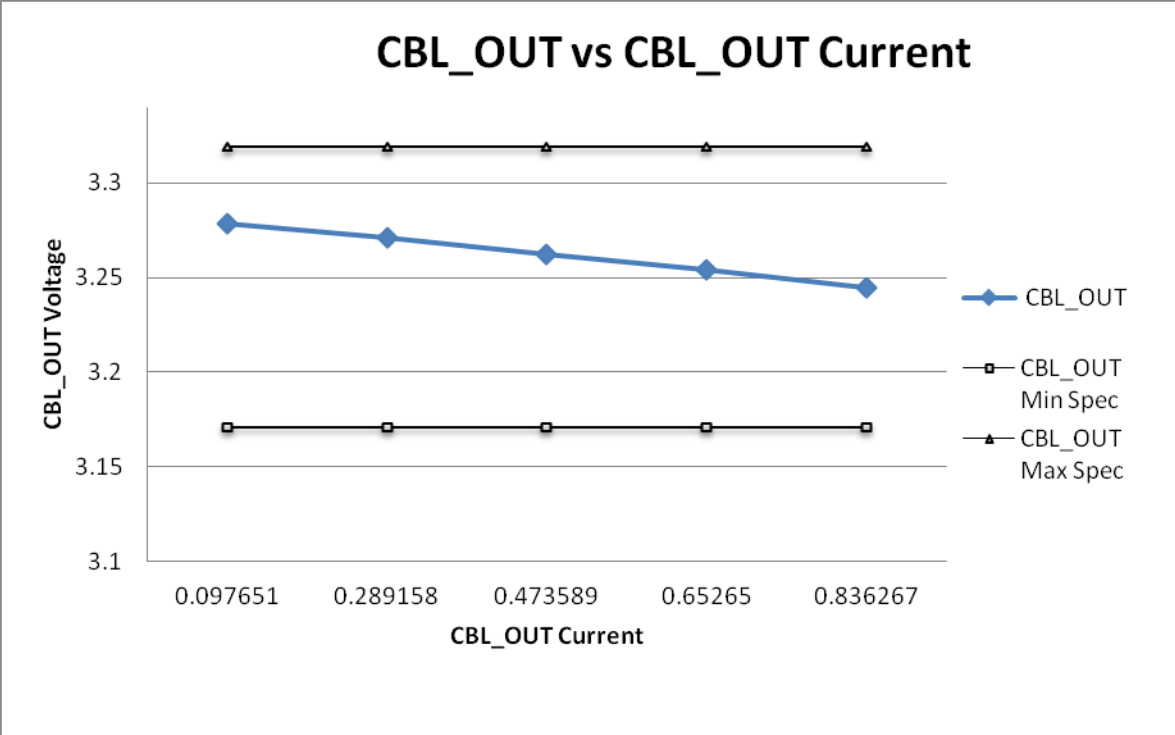
CBL\_OUT Current vs CBL\_OUT Load



- Max ICBL\_OUT = 1.258A

Resistive Load	CBL_OUT Current	CBL_OUT
33	0.097	3.276
11	0.289	3.268
6.6	0.473	3.260
4.7	0.653	3.251
3.6	0.837	3.242
3	0.988	3.234
2.5	1.164	3.224
2	1.211	2.765
1.7	1.239	2.444
1.5	1.255	2.218
1.3	1.258	1.967
0.9	0.807	0.932
0.8	0.097	3.276

# CBL\_OUT Load Testing



- **CBL\_OUT = 3.24V @ 837mA**

CBL_OUT Current	TBT_OUT	CBL_OUT	DEV_OUT	RESET_N
0.097	3.280	3.276	3.279	3.279
0.289	3.280	3.268	3.279	3.279
0.473	3.279	3.260	3.277	3.278
0.653	3.278	3.251	3.276	3.276
0.837	3.277	3.242	3.274	3.274

# System Power Sequencing

# TPS65980 Start Up (TBT\_IN 0 → 2.5V)



Thunderbolt Input Power  
Thunderbolt Main Supply  
Thunderbolt Controller Reset



# TPS65980 LV → HV Mode (3.3V to 6.5V)



**Thunderbolt Input Power**  
**Thunderbolt Cable Supply**  
**Thunderbolt Control Signal**

# TPS65980 LV→HV Mode DEV\_OUT



**Thunderbolt Control Signal**  
**Thunderbolt Support Supply**  
**Thunderbolt Control Signal**

# TPS65980 DEV\_OUT Control (DEV\_ENz)



**Thunderbolt Control Signal**  
**Thunderbolt Support Supply**

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