

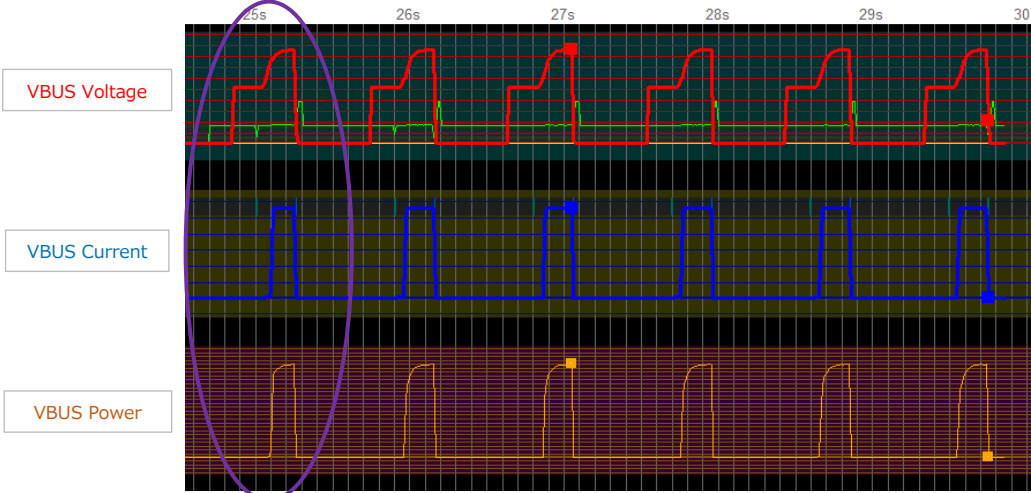
▼ about AC Adapter

Symptoms of repeated negotiations without load

Manufacturer	Name	capability	Negotiation		Maximum VBUS Current
			Voltage	Current	
Belkin	BOOST ↑ CHARGE PRO	18W	9.00V	2.00A	2.80A

▼Detailed results with protocol analyzer "GRL-USB-PD-A1"

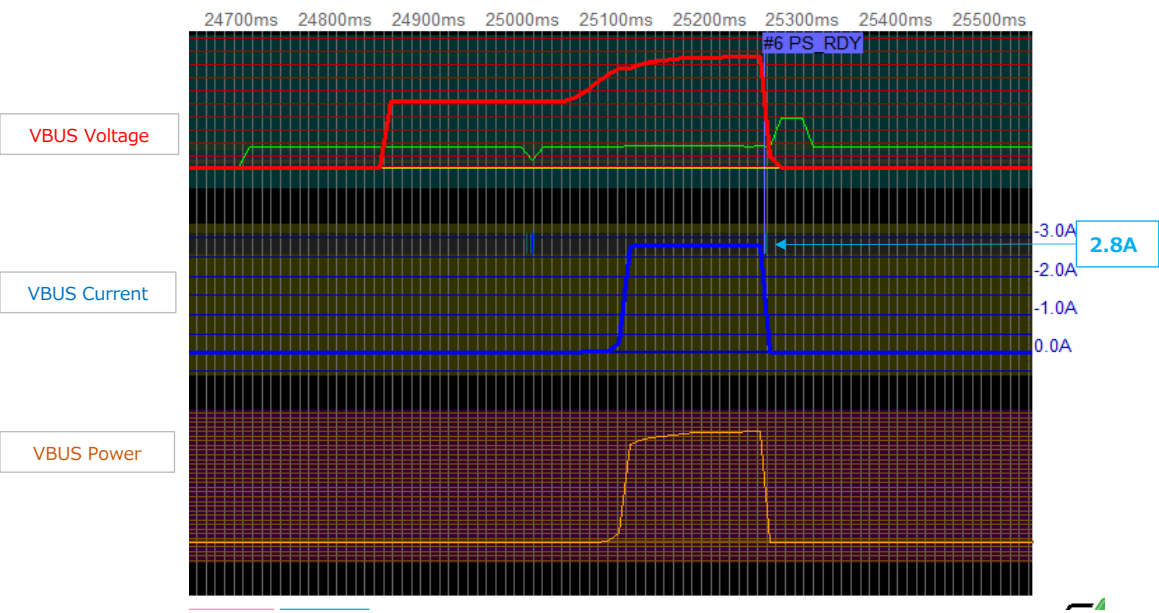
Symptom where negotiation is repeated after determining voltage and current



Enlarged waveform

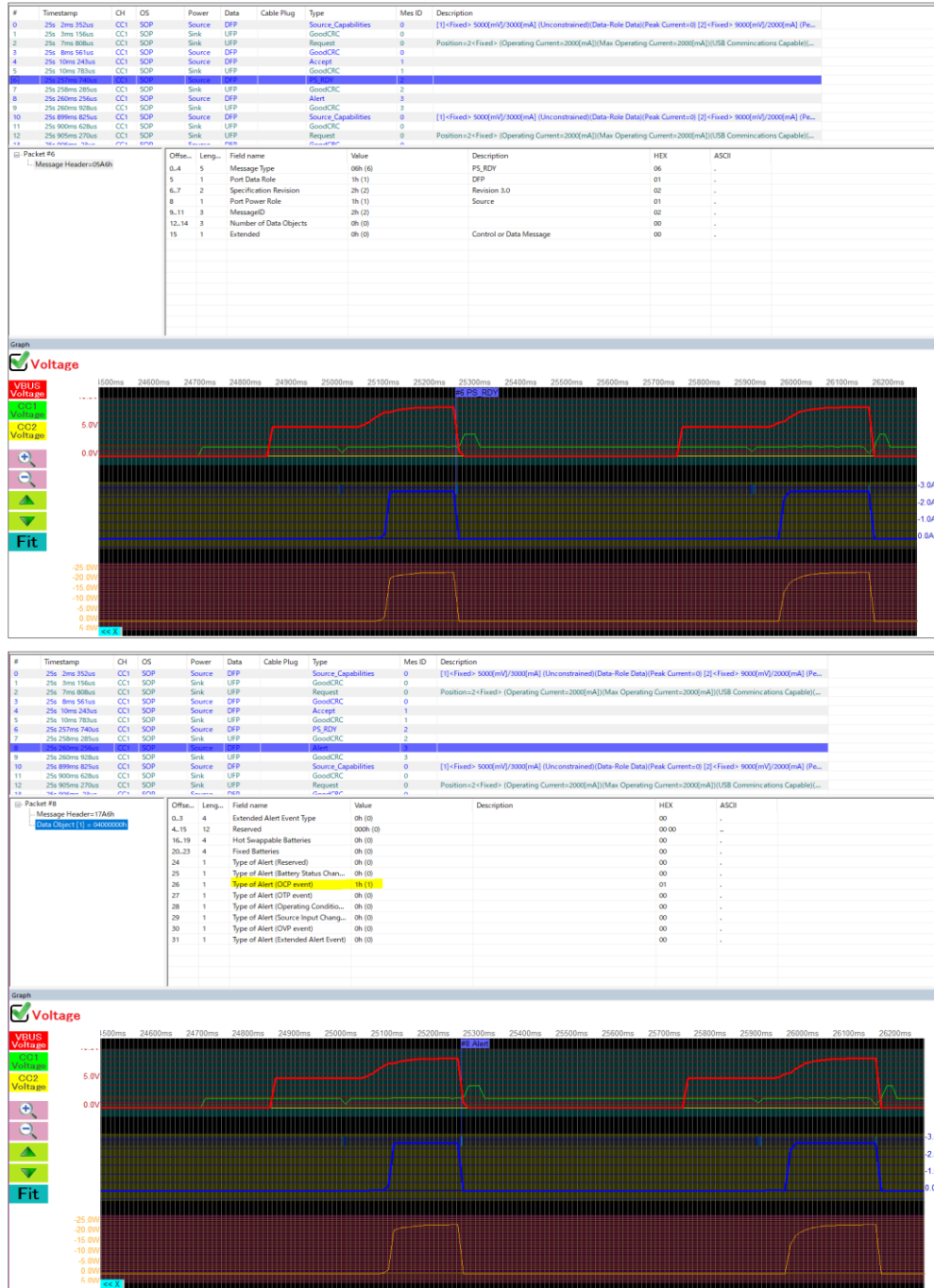
- TPS25750 sinks current before the source device sends "PS_RDY".
- It recognized 9V/2A, but TPS25750 sinks 2.8A.

TPS25750 should sink current after the negotiation value is written in the BQ25792 register IINDPM.

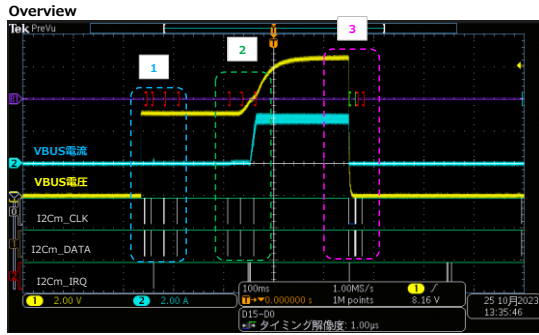


▼Logs with protocol analyzer

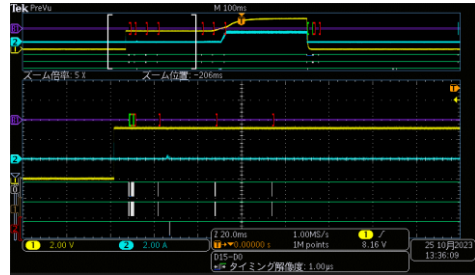
According to "7.3.1.1.2.2 Increasing the Voltage and Current" on page 305 of Universal Serial Bus Power Delivery Specification "USB_PD_R3.1 V1.0 2023-04.pdf", SOURCE device must change the VBUS voltage and make it stable before sending PS_RDY. If confirming the logs, an OCP (Over Current Protect) has been issued by SOURCE device. Additionally, the SINK device must sink current after PS_RDY is sent from the SOURCE device. Please see the USB PD specification.



▼I2Cm Screenshots



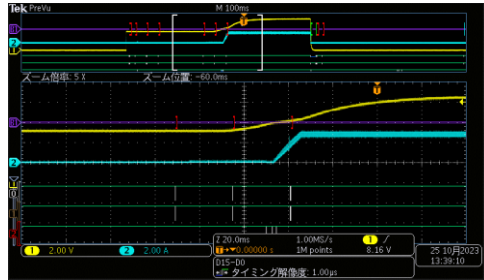
1 Immediately after connection



Write				Read		
Slave Addr	Reg Addr	Data to Addr	Data to Addr	Slave Addr	Data1	Data2
6B	16	C0				
6B	01	06	90			
6B	03	00	A0			
6B	0A	EF				
6B	17	02				
6B	06	01	2C			
6B	05	2E				
6B	13			6B	11	1C
6B	13	01				
6B	1C			6B	10	
6B	13			6B	01	1C

Reg	W or R	Data1	Data2	Reg
REG16_Temperature_Control Register	Write	C0		
REG01_Charge_Voltage_Limit Register	Write	06	90	
REG03_Charge_Current_Limit Register	Write	00	A0	
REG0A_Re-charge_Control Register	Write	EF		
REG17_NTC_Control_0 Register	Write	02		
REG06_Input_Current_Limit Register	Write	01	2C	IINDPM_8:0 =3000mA
REG05_Input_Voltage_Limit Register	Write	2E		VINDPM_7:0=4600mV
REG13_Charger_Control_4 Register	Read	11	1C	
REG13_Charger_Control_4 Register	Write	01		
REG1C_Charger_Status_1 Register	Read	10		
REG13_Charger_Control_4 Register	Read	01	1C	

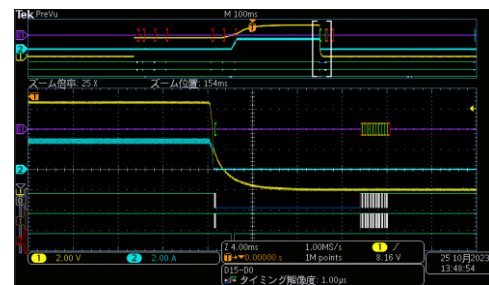
2 When increasing VBUS voltage and current



Write				Read		
Slave Addr	Reg Addr	Data to Addr	Data to Addr	Slave Addr	Data1	Data2
6B	13	C0				
6B	01	1C				
6B	13	11				
6B	1C			6B	70	

Reg	W or R	Data1	Data2	Reg
REG13_Charger_Control_4 Register	Write	C0		
REG01_Charge_Voltage_Limit Register	Write	1C		
REG13_Charger_Control_4 Register	Write	11		
REG1C_Charger_Status_1 Register	Read	70		

3 After VBUS voltage decreases



Write				Read		
Slave Addr	Reg Addr	Data to Addr	Data to Addr	Slave Addr	Data1	Data2
6B	06	00	C8			
6B	10	80				
6B	14	1C				
6B	11	00				
6B	12	00				
6B	08	C8				
6B	09	05				
6B	01	06	90			
6B	03	00	A0			
6B	0A	EF				
6B	17	02				

Reg	W or R	Data1	Data2	Reg
REG06_Input_Current_Limit Register	Write	C8		IINDPM_8:0 =2000mA
REG10_Charger_Control_1 Register	Write	80		
REG14_Charger_Control_5 Register	Write	1C		
REG11_Charger_Control_2 Register	Write	00		
REG12_Charger_Control_3 Register	Write	00		
REG08_Precharge_Control Register	Write	C8		
REG09_Termination_Control Register	Write	05		ITERM=5h=200mA
REG00_Minimal_System_Voltage Register	Write	06	90	
REG03_Charge_Current_Limit Register	Write	00	A0	ICHG=1600mA
REG0A_Re-charge_Control Register	Write	EF		VRECHG=800mV
REG17_NTC_Control_0 Register	Write	02		JEITA_1SETC_1:0=20%