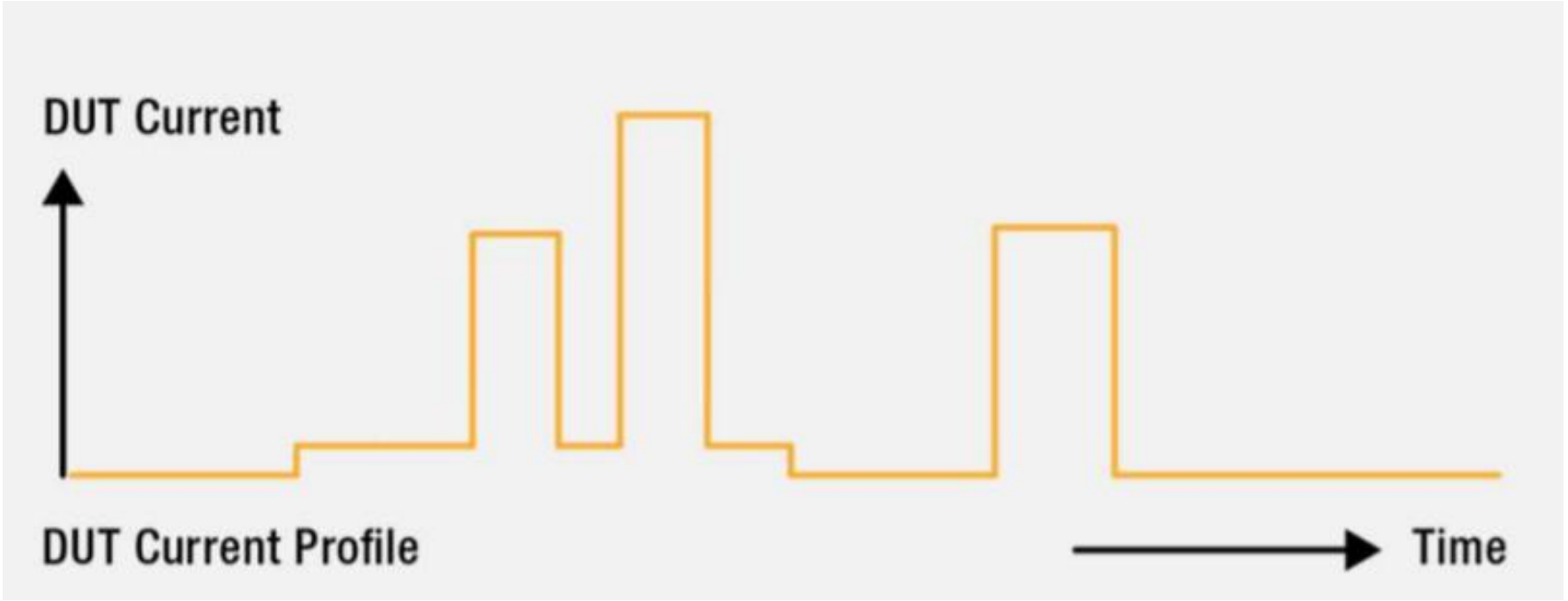
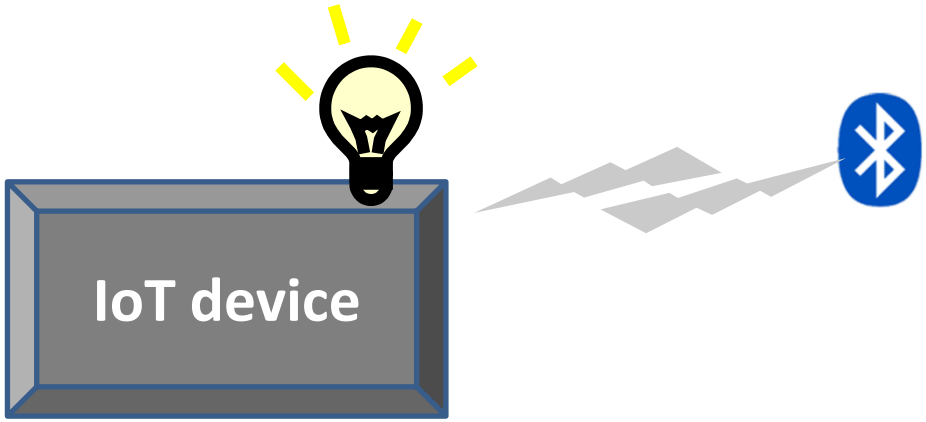
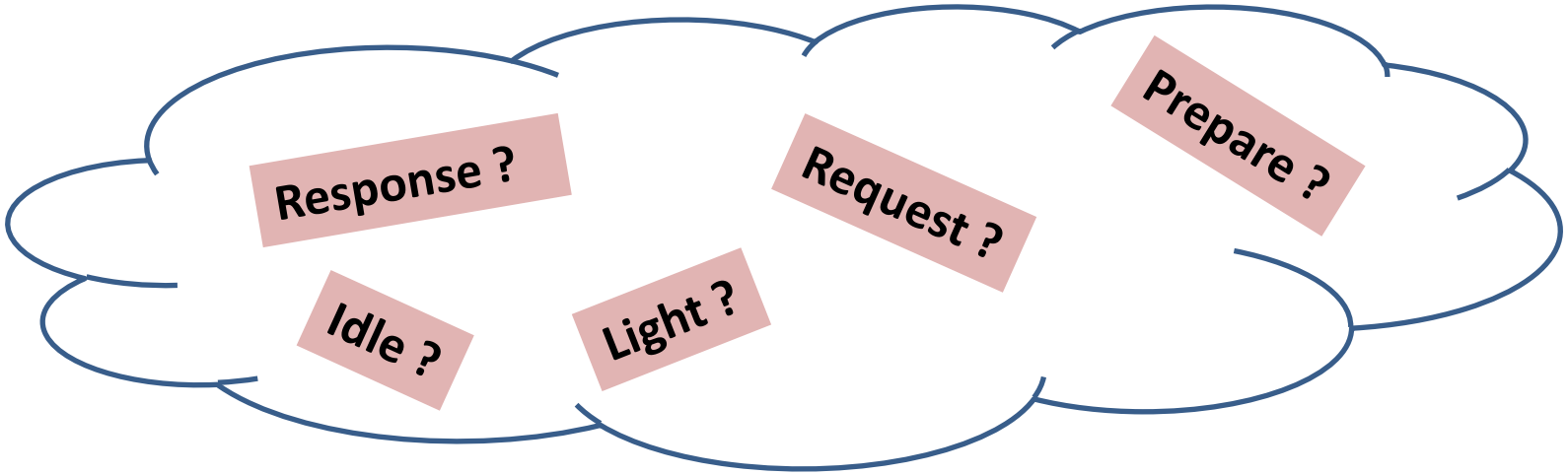
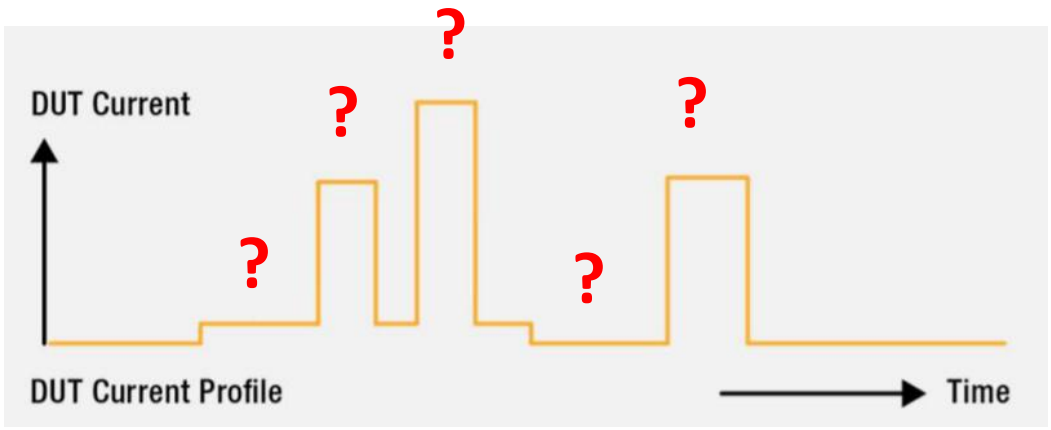
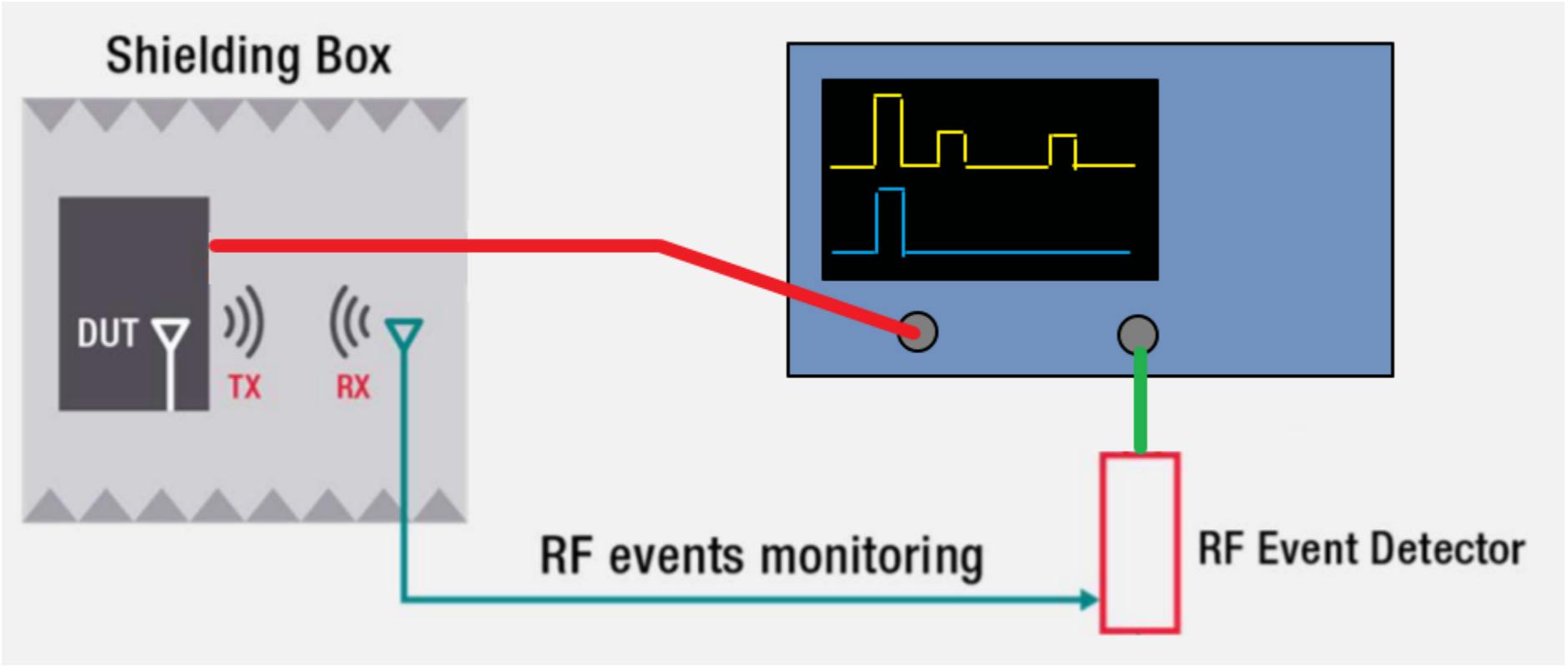
Verify TX power consumption of RF device

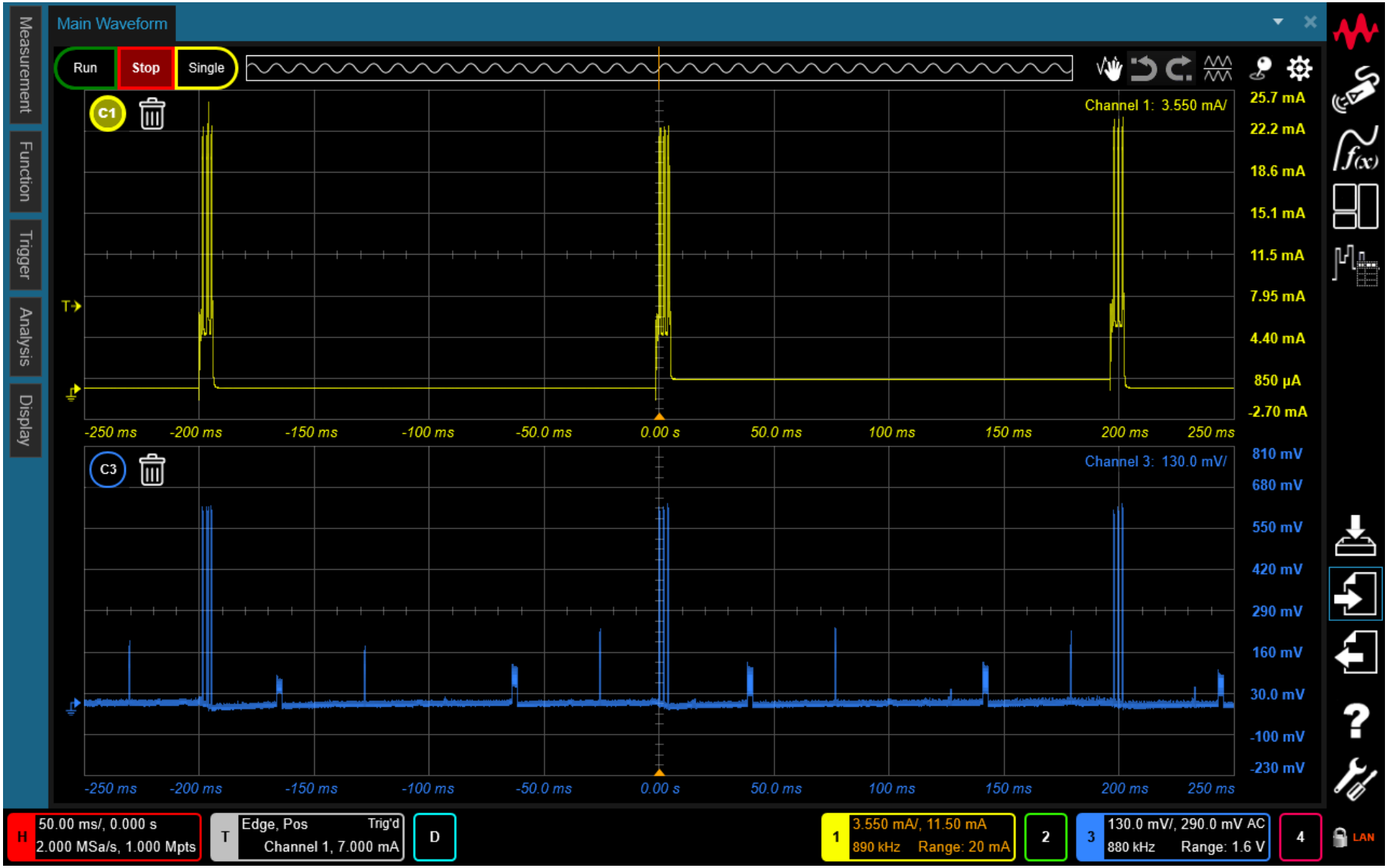

DUT Current
DUT Current Profile
Time

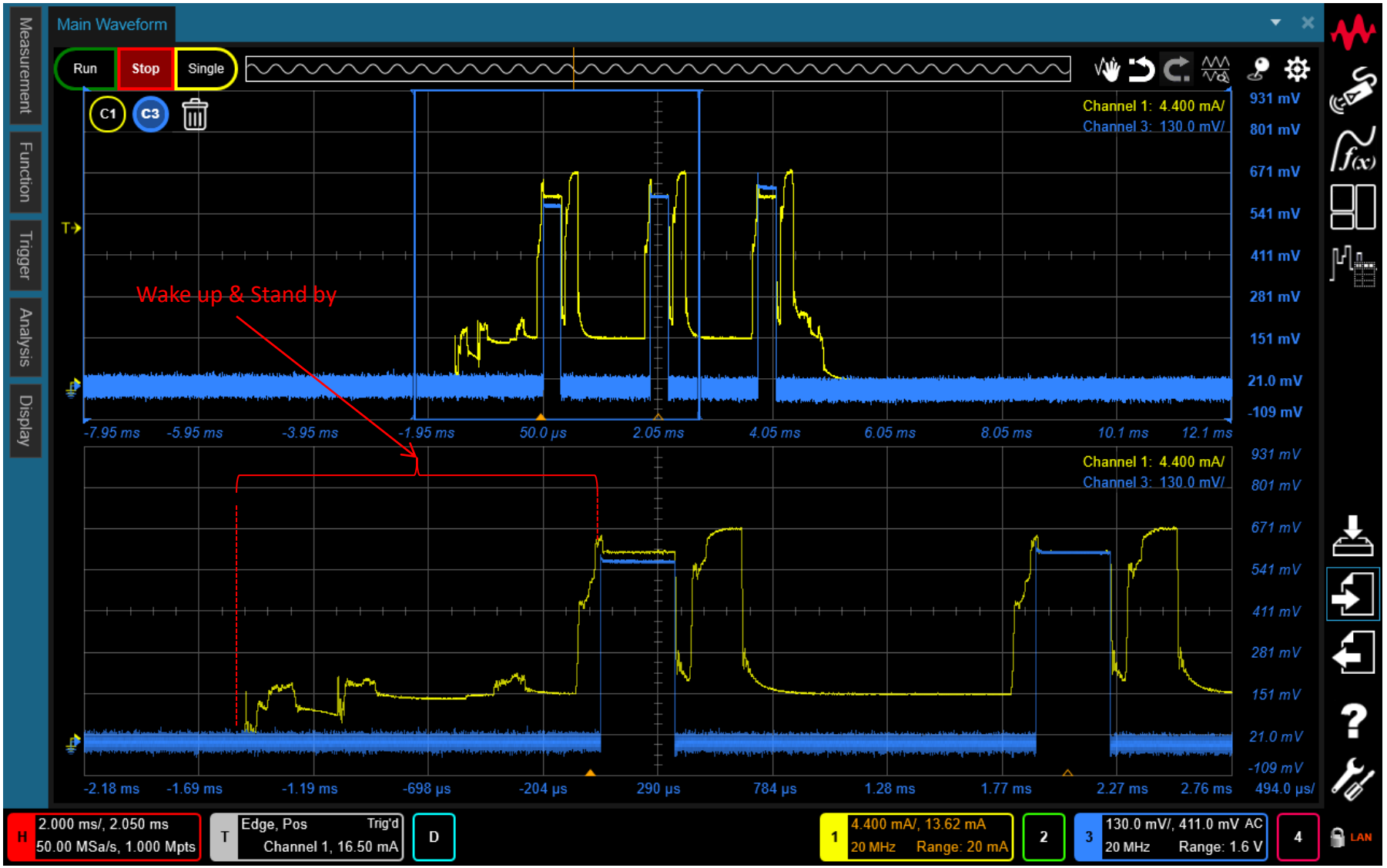

IoT device

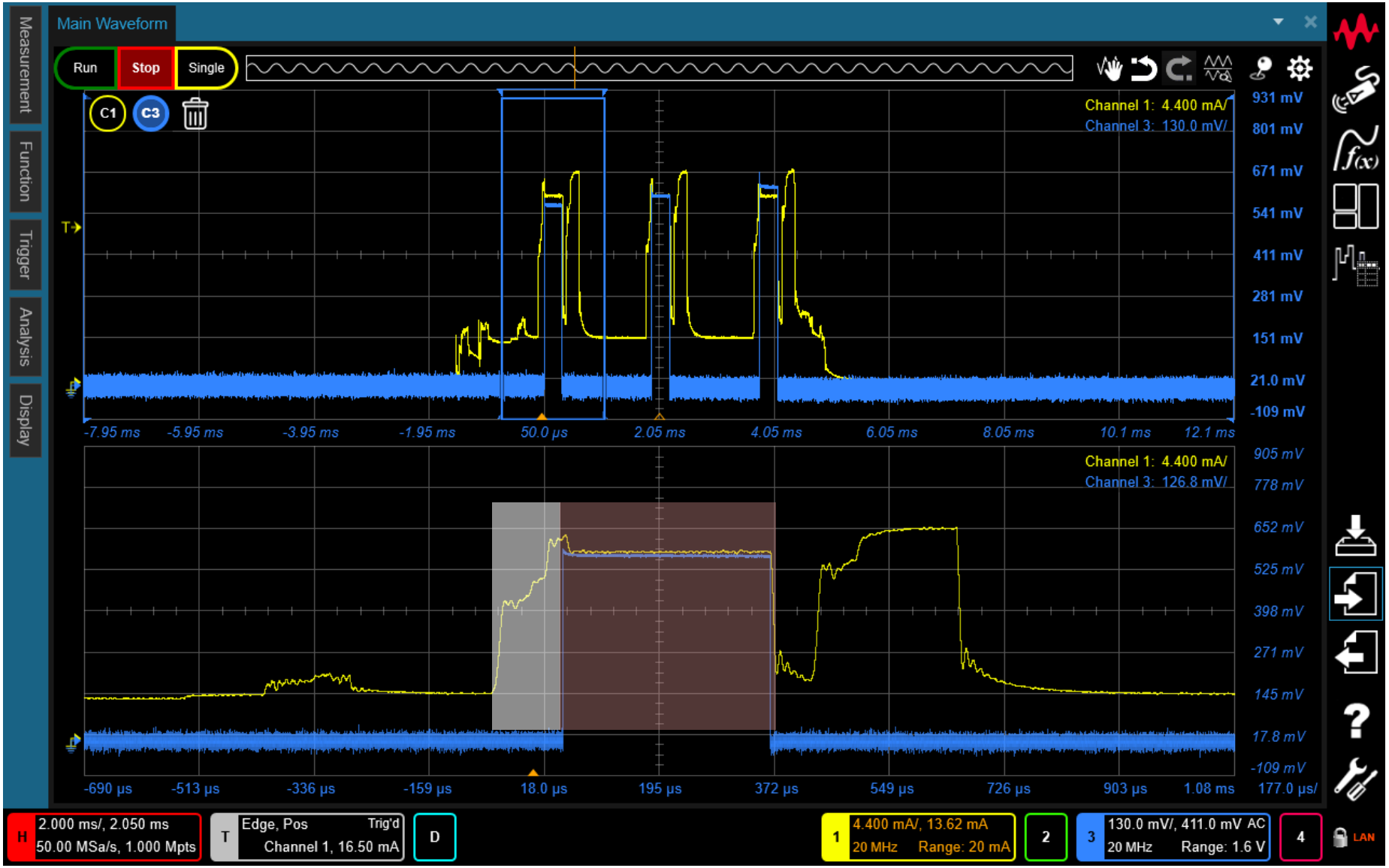

Response ?
Request ?
Prepare ?
Idle ?
Light ?


DUT Current
DUT Current Profile
Time


Shielding Box
DUT
TX
RX
RF events monitoring
RF Event Detector



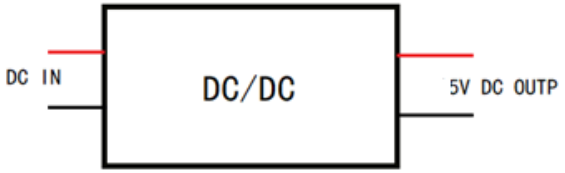

Main Waveform
Run
Stop
Single
C1
C3
Channel 1: 4.400 mA/
Channel 3: 130.0 mV/
931 mV
801 mV
671 mV
541 mV
411 mV
281 mV
151 mV
21.0 mV
-109 mV
Wake up & Stand by
-7.95 ms
-5.95 ms
-3.95 ms
-1.95 ms
50.0 µs
2.05 ms
4.05 ms
6.05 ms
8.05 ms
10.1 ms
12.1 ms
Channel 1: 4.400 mA/
Channel 3: 130.0 mV/
931 mV
801 mV
671 mV
541 mV
411 mV
281 mV
151 mV
21.0 mV
-109 mV
-2.18 ms
-1.69 ms
-1.19 ms
-698 µs
-204 µs
290 µs
784 µs
1.28 ms
1.77 ms
2.27 ms
2.76 ms
494.0 µs/
Measurement
Function
Trigger
Analysis
Display
H
2.000 ms/, 2.050 ms
50.00 MSa/s, 1.000 Mpts
T
Edge, Pos
Trig'd
Channel 1, 16.50 mA
D
1
4.400 mA/, 13.62 mA
20 MHz
Range: 20 mA
2
3
130.0 mV/, 411.0 mV AC
20 MHz
Range: 1.6 V
4
LAN



Automatic measurement

Check quality of DC-DC converter

DC IN: 18-36V
DC OUT: 5V



Parameters Set		Measure Result									
Vs Set	Iload Set	Vin (V)	Curr In	Powe Inp	Vout	Curr Load (A)	Power Outp	Eff %	Temperature	Vrms	Vpk-pk
18	0.5										
18	1										
18	2										
18	3										
24	0.5										
24	1										
24	2										
24	3										
36	0.5										
36	1										
36	2										
36	3										

Loop

3 (Vs) * 4 (Iload) * 10 (mesure) = 120 !!

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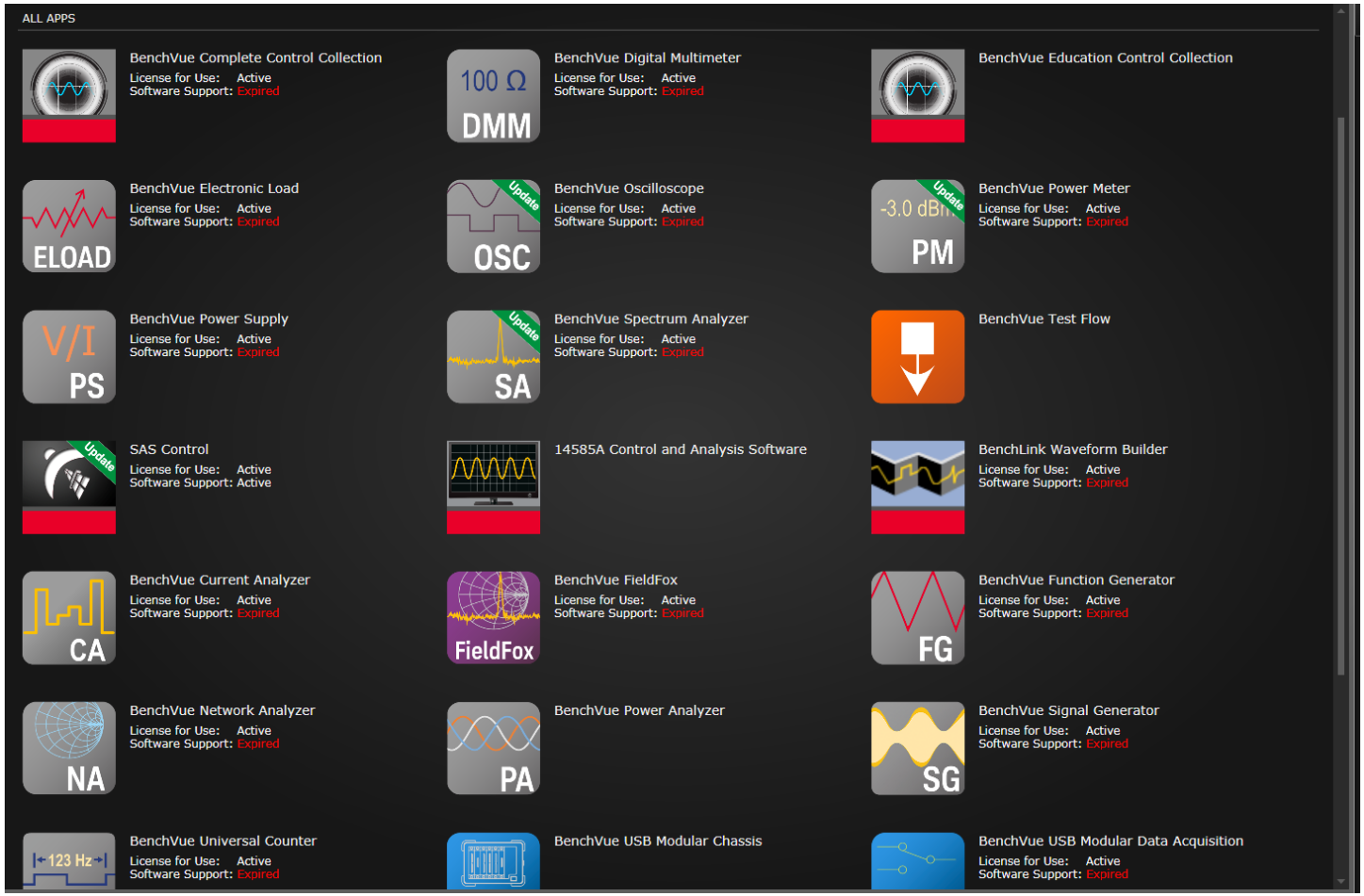
BenchVue Software

Control. Automate. Simplify.



GPIB

USB

LAN

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BenchVue
Supported Instruments

Data acquisition units (4)

34970A
34972A
DAQ970A
34980A

Digital multimeters (10)

34401A,34405A, 34410A, 34411A, 34420A[1], 34450A[1], 34460A[1], 34461A[1], 34465A[1], 34470A[1]

Network analyzers (45)

ENA E50xxA/B/C (5)
PNA N522xA/B (10)
PNA-L N523A/B/C (11)
PNA-X N524xA/B (12)
PXI VNAs
M937xA (6)
PXIe multiport VNA
M9485A

USB modular devices (21)

U2300 Series[1]
U2500 Series[1]
U2600 Series[1]
U2700 Series[1]

Power meters/ sensors (33)

U2021XA[1]
U2022XA[1]
U2041XA[1]
U2042XA[1]
U2043XA[1]
U2044XA[1]
U2049XA LAN[1]
U2000 Series[1] (9)
U2053/63 Series[1]
L2050/60 Series[1] (6)
U848x Series[1] (4)
N191xA[1] (4)
N8262A[1]

Current Analyzers (2)

CX3322A
CX3324A

LCR Meters (2)

E4980A
E4980AL

Function generators (19)

332x0A (3)
33500 Series[1] (10)
33600 Series[1] (4)
81150A
81160A

Power analyzers (2)

PA2201A
PA2203A

Signal generators (14)

E4428C
E4438C
E8257D
E8267D
E8663D
EXG X-Series
N517xB (3)
MXG X-Series
N518xB (3)
N518xA (3)

Power supplies/SMUs (168)

B2900 Series[1] (4)
B2961A/62A[1]
E3600 Series (14)
E36100 Series[1] (10)
E36300 Series[1] (4)
N5700 Series[1] (24)
N6700A/B/C[1]
N6701A/C[1]
N6702A/C[1]
N6705A/B/C[1]
N6785A[1]
N6786A[1]
N6900 Series[1] (12)
N7900 Series[1] (12)
N8700 Series[1] (21)
N8900 Series[1] (36)
RP7900 Series (17)

Spectrum/signal analyzers (30)

X-Series
N9040B UXA
N9030A/B PXA
N9020A/B MXA
N9010A/B EXA
N9000A/B CXA
M9290A CXA
HSA N934xC (3)
ESA E440xB (4)
PSA E444x (6)
BSA N932xB/C (2)

Electronic loads (4)

N3300A[1]
N3301A[1]
6060B
6063B

FieldFox analyzers (22)

N9912A-N9918A (6)
N9923A-N9928A (4)
N9935A-N9938A (4)
N9950A-N9952A (3)
N9960A-N9962A (3)

Oscilloscopes (218)

1000-X Series[1] (4)
2000-X Series[1] (12)
3000-X Series[1] (18)
3000T Series [1] (20)
4000-X Series[1] (16)
5000 (5)
6000A Series (16)
6000L Series (3)
6000-X Series[1] (4)
7000 Series (28)
9000 Series (8)
90000 (6)
90000 Q-Series (5)
90000 X-Series (12)
90000 DSA Series (16)
P924xA Series (3)
S Series (14)
V Series (18)
Z Series (10)

Counters (3)

53210A[1]
53220A[1]
53230A[1]

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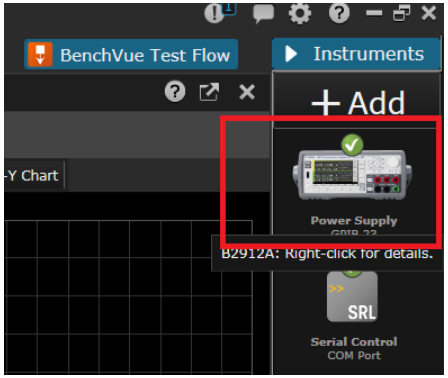
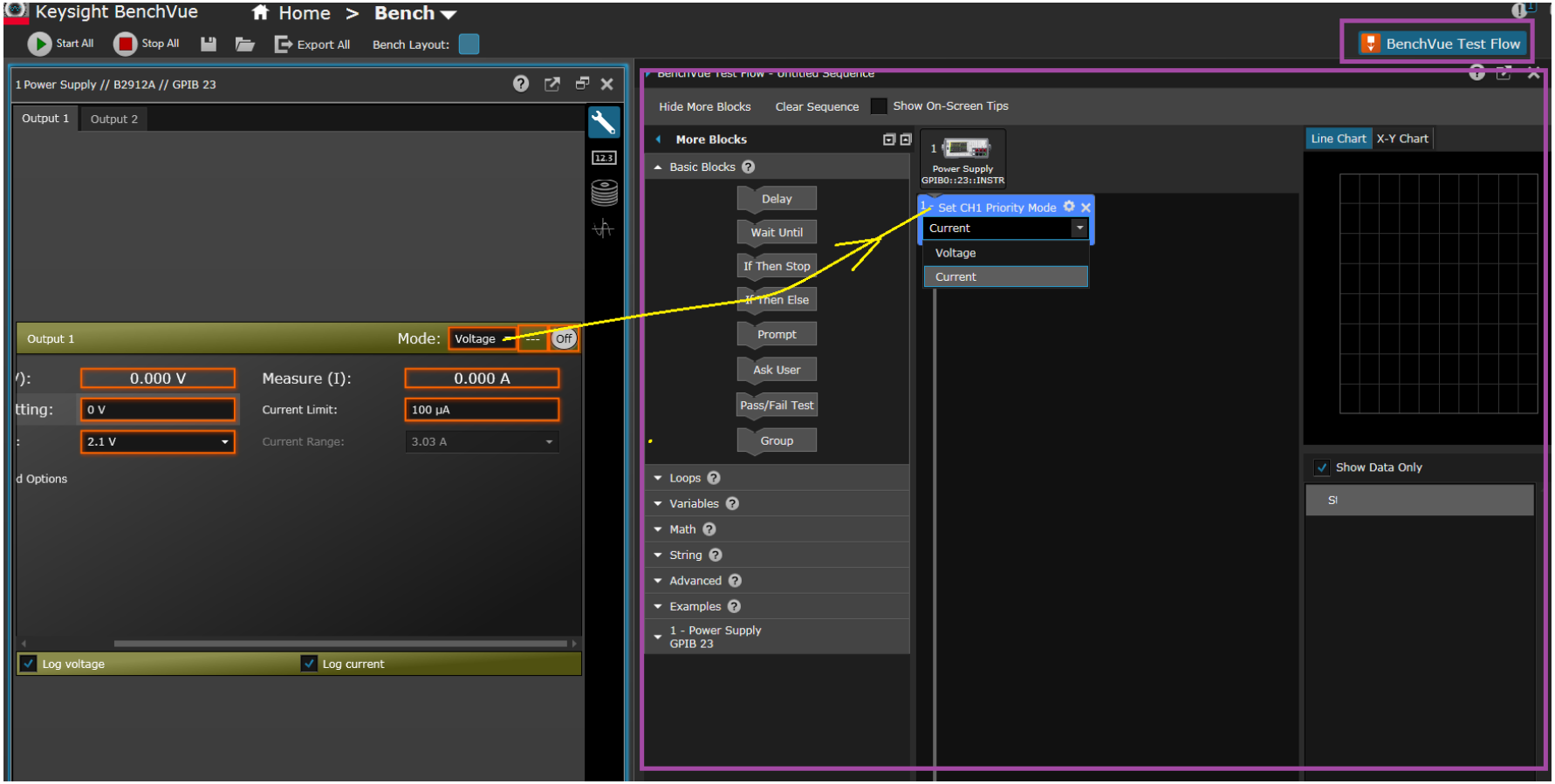
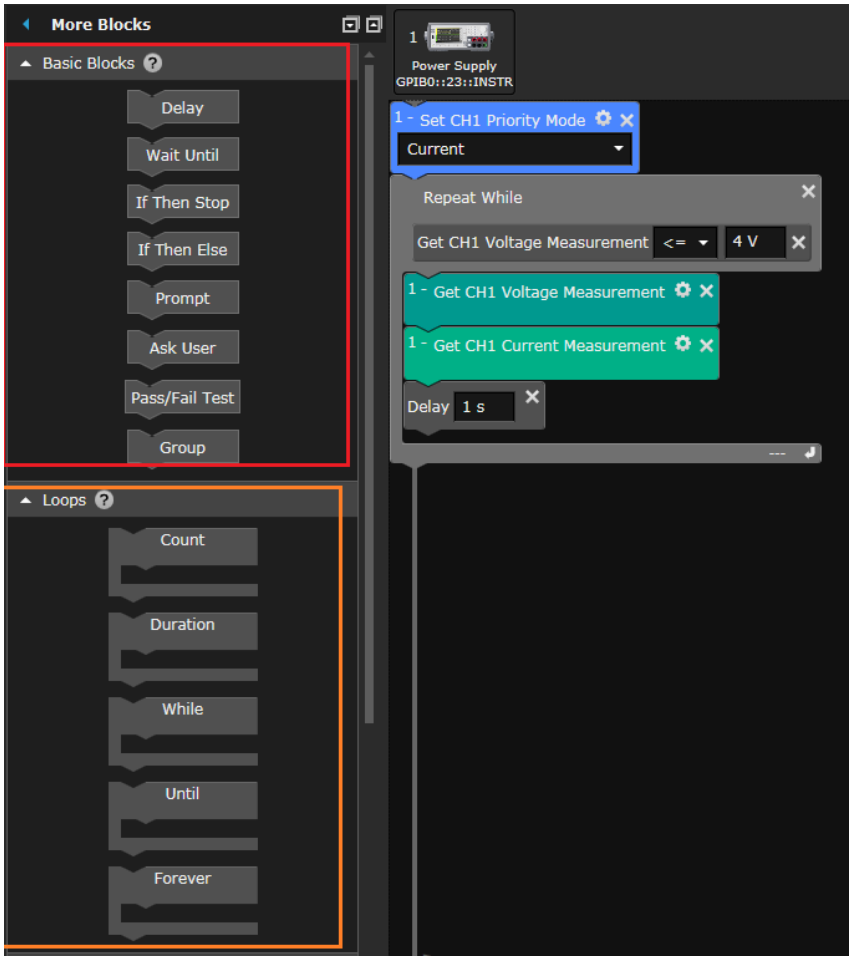
Easy connection and control

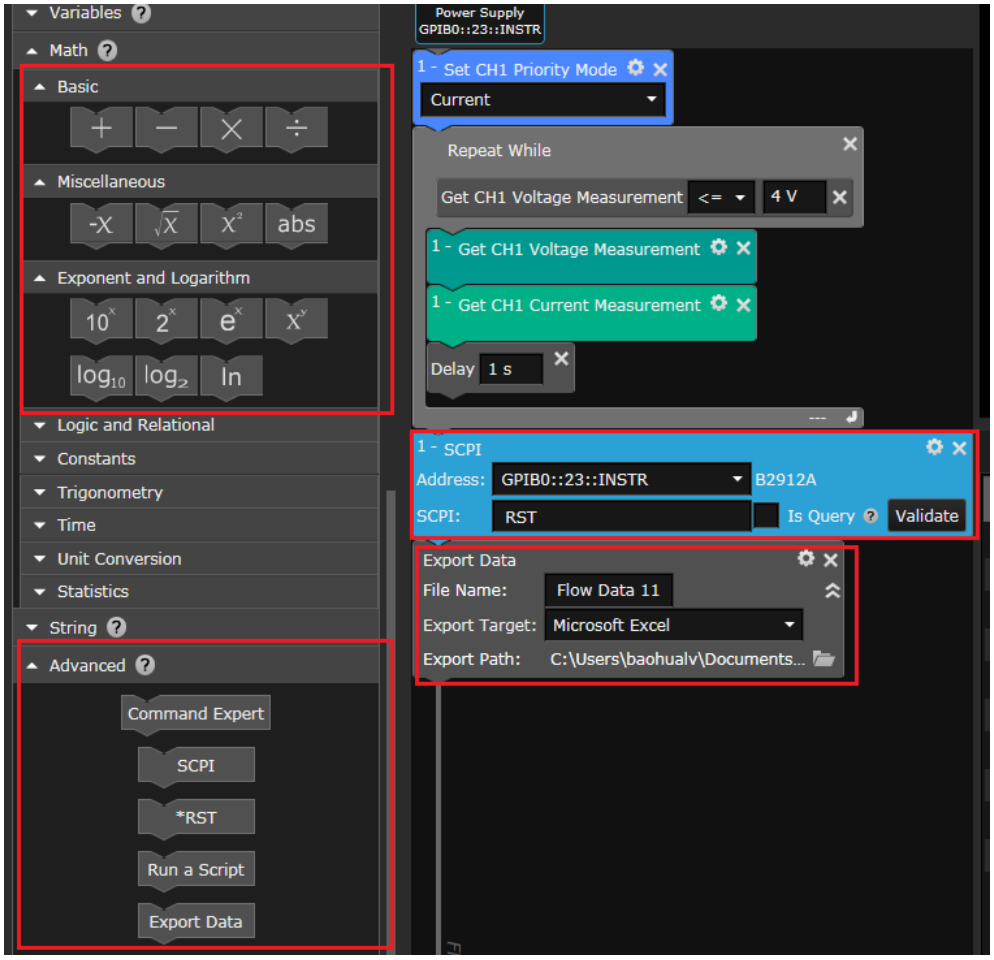


Test Flow- easy setting



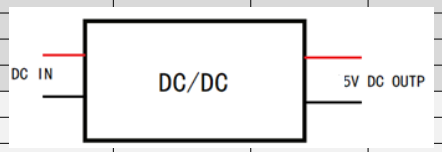
Test Flow- advance function

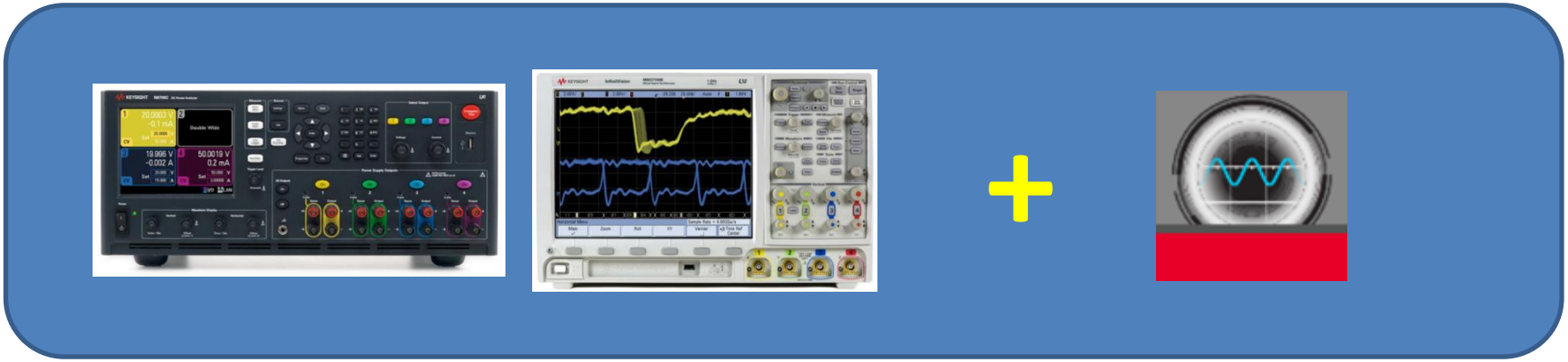




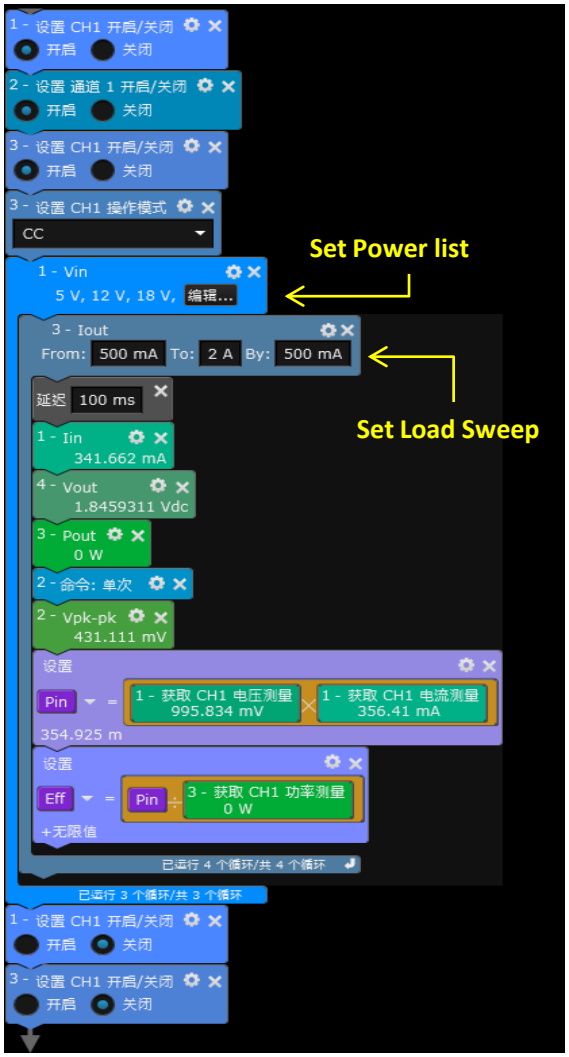
Get DC-DC measurement

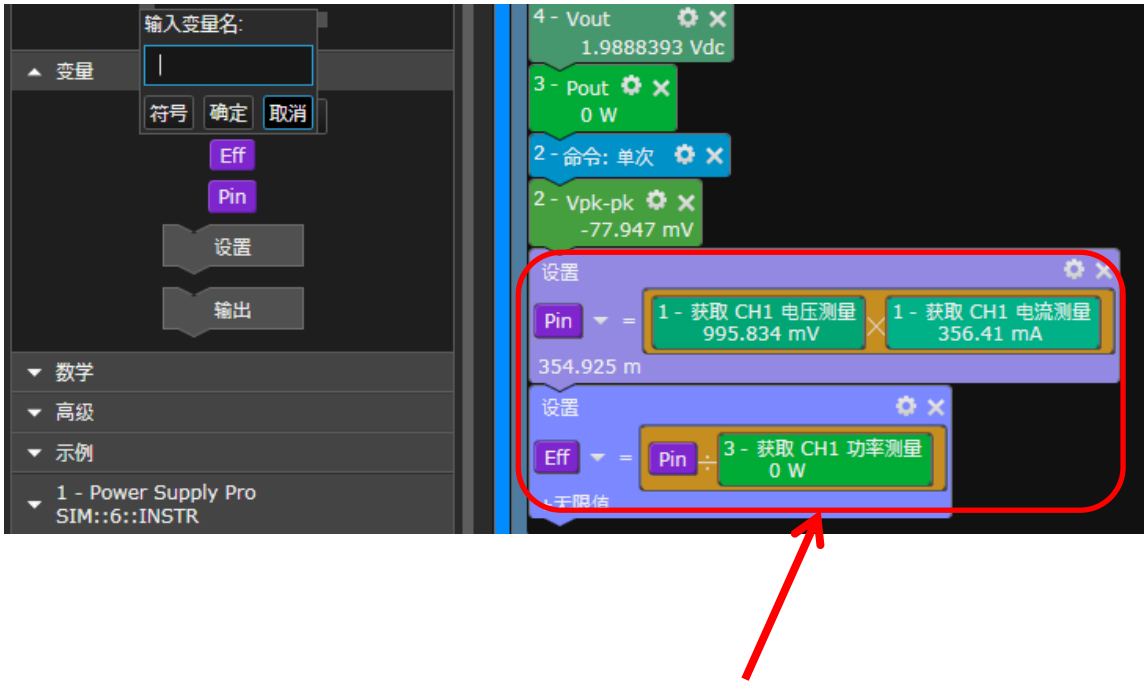
Parameters Set		Measure Result									
Vs Set	Iload Set	Vin (V)	Curr In	Powe Inp	Vout	Curr Load (A)	Power Outp	Eff %	Temperature	Vrms	Vpk-pk
18	0.5										
18	1										
18	2										
18	3										
24	0.5										
24	1										
24	2										
24	3										
36	0.5										
36	1										
36	2										
36	3										





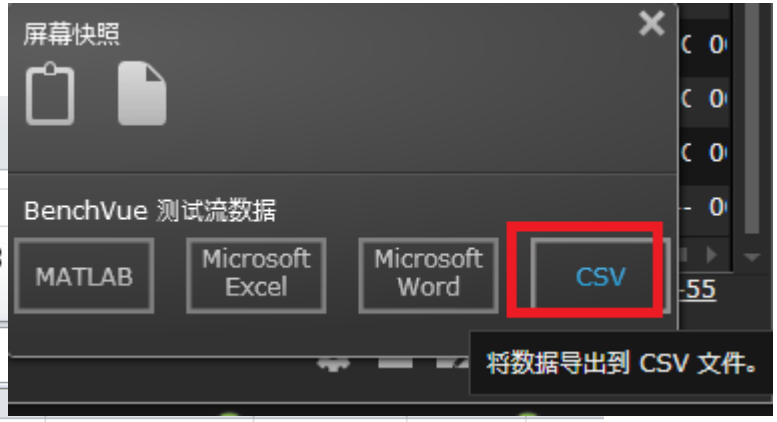
Setup DC-DC measurement





Auto calculate: **Eff = Pout / Pin**

Measurement Report



	A	B	C	D	E	F	G
1	序列中的仪器	1 - N8762A - SIM::6::INSTR					
2	序列中的仪器	2 - DSO-X 2024A - SIM::9::INSTR					
3	序列中的仪器	3 - N3300A - SIM::5::INSTR					
4	序列中的仪器	4 - 34470A - SIM::8::INSTR					
5							
6	Start Time	31:51.2					
7	Stop Time	31:57.8					
8							

9	Time	Step	Voltage Se	Current Set	Current Measureme	Measurement Value (V	ower Measure	easurement "Pk-Pk(1)	(W)	(V)
10	31:52.9	1	5	0.5	0.01	0.419434869	0	-0.113321266	0.121	0
11	31:53.3	2	5	1	0.11	0.675352352	0	0.287300264	0.165056824	0
12	31:53.7	3	5	1.5	0.151421356	1.123224126	0	-0.057743102	0.197897885	0
13	31:54.1	4	5	2	0.183205081	0.181700137	0	0.307053977	0.224793562	0
14	31:54.6	5	12	0.5	0.21	1.432130438	0	-0.07105219	0.247807624	0
15	31:55.0	6	12	1	0.233606798	1.880002212	0	0.430332416	0.268009864	0
16	31:55.5	7	12	1.5	0.254948974	0.519828276	0	0.323179252	0.286042633	0
17	31:55.9	8	12	2	0.274575131	0.96770005	0	0.047691649	0.302329007	0
18	31:56.5	9	18	0.5	0.292842712	0.962180512	0	-0.345105141	0.317166067	0
19	31:56.9	10	18	1	0.31	0.631260759	0	-0.174719194	0.330772505	0
20	31:57.3	11	18	1.5	0.326227766	0.276574006	0	-0.18580043	0.343315243	0
21	31:57.8	12	18	2	0.341662479	1.335050016	0	-0.322190314	0.354925405	0
22										

Thanks for your attention!!

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CXG — 品質可靠，值得信賴

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- 為通用市場和前沿 IoT 市場優化了配置
- SCPI 編程代碼與所有 Agilent/Keysight 信號源產品兼容

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