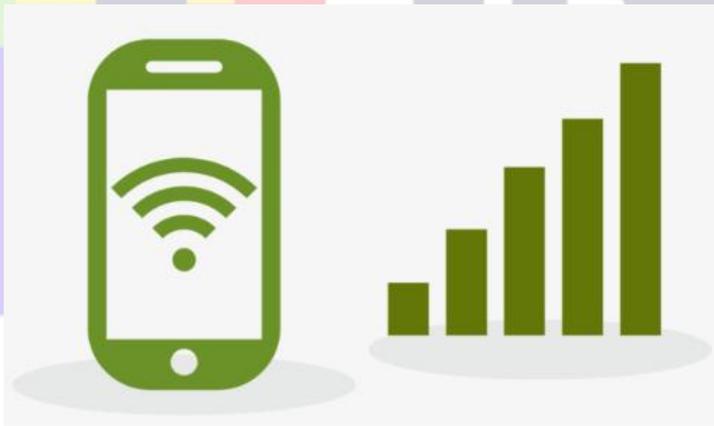
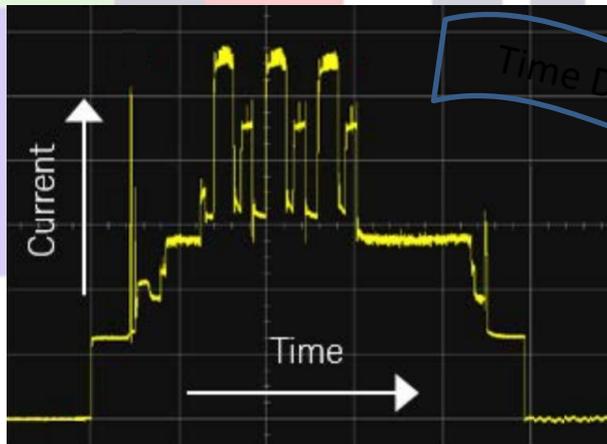
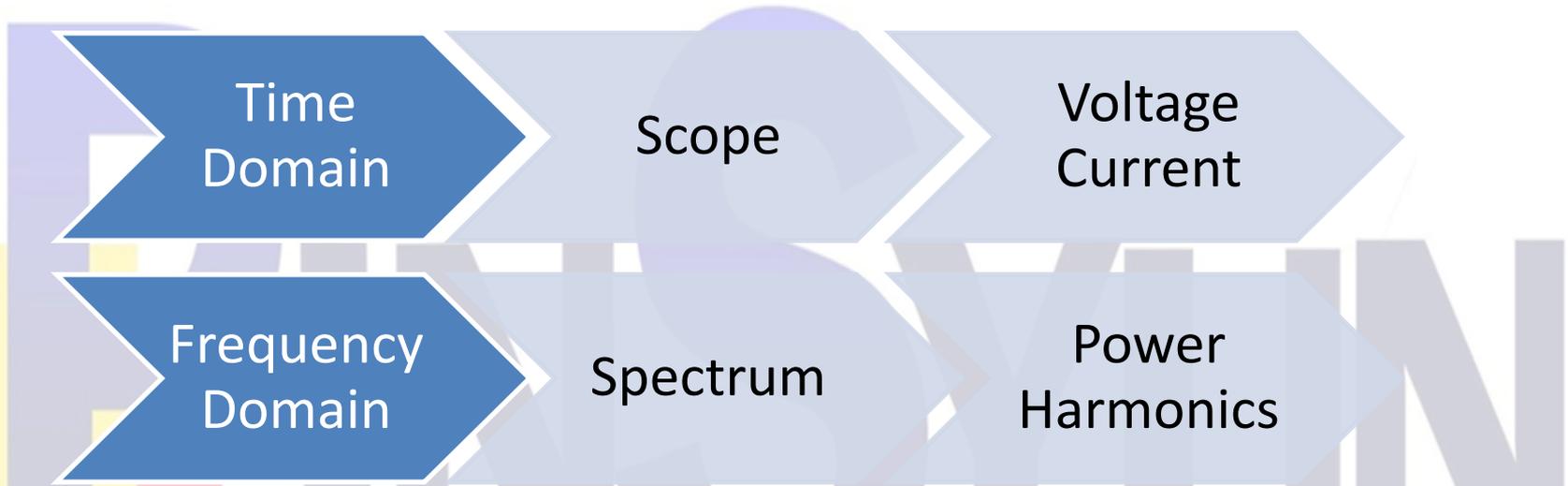


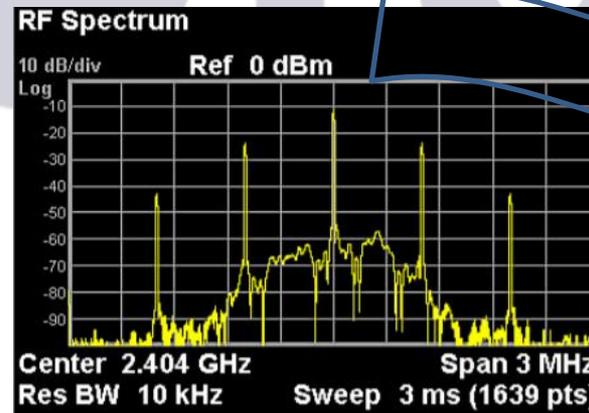
Verify TX power consumption of RF device



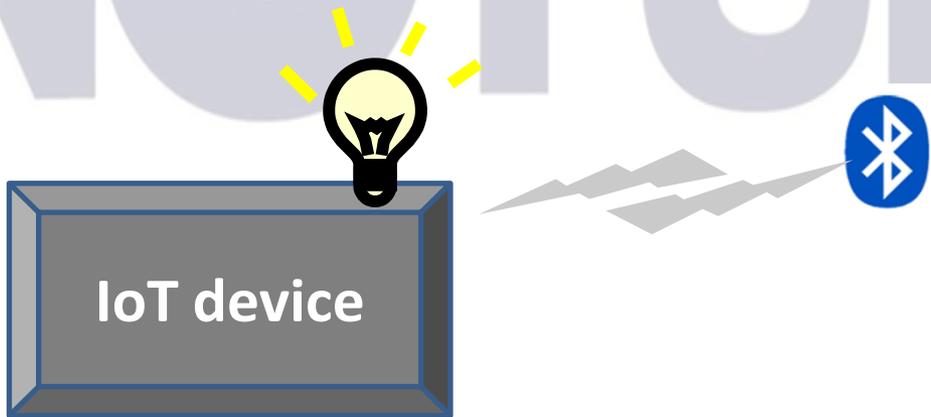
Analysis Solution

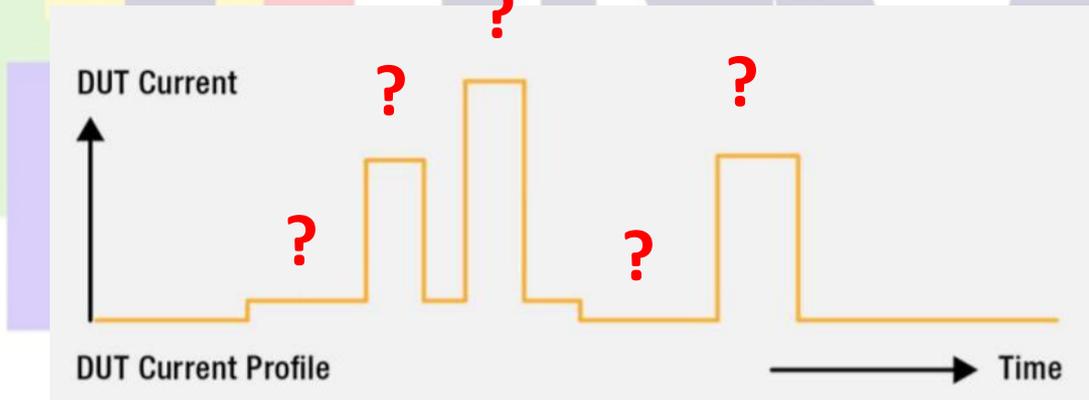
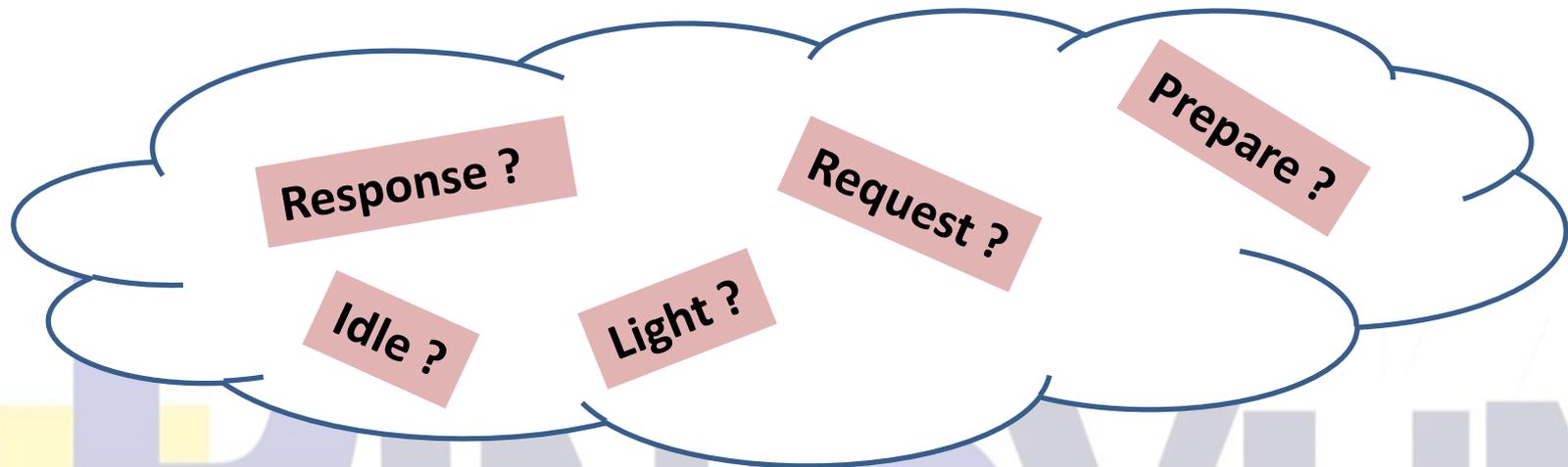


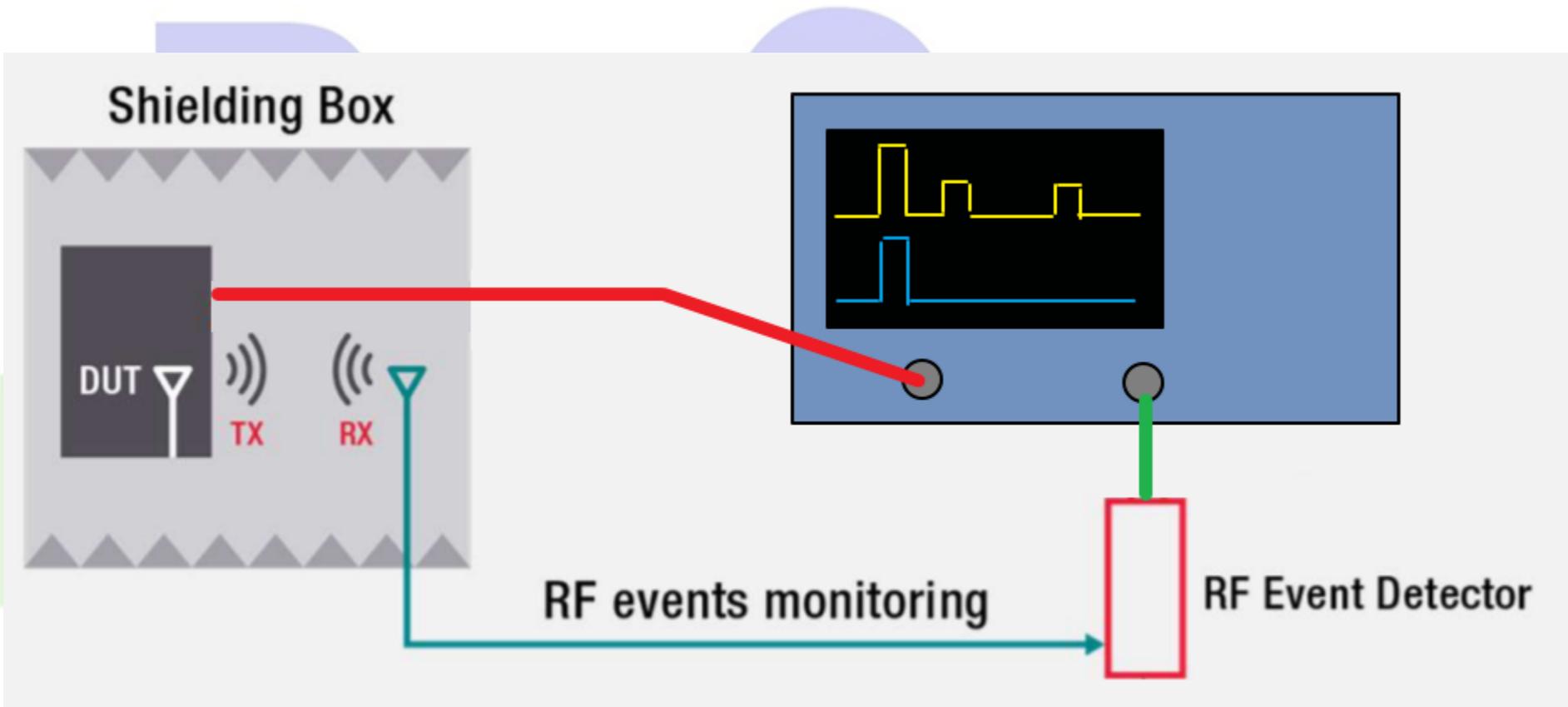
Time Domain

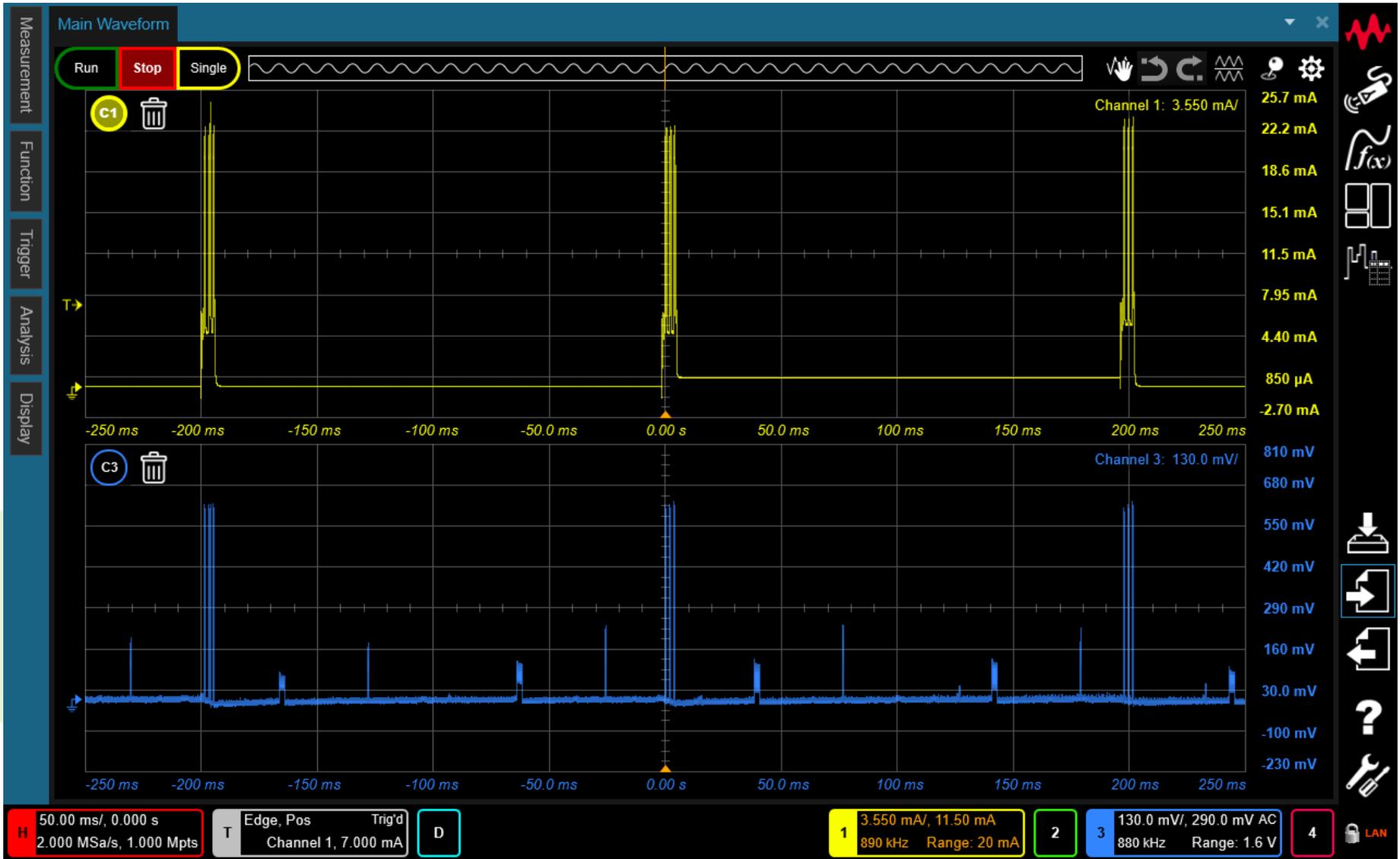


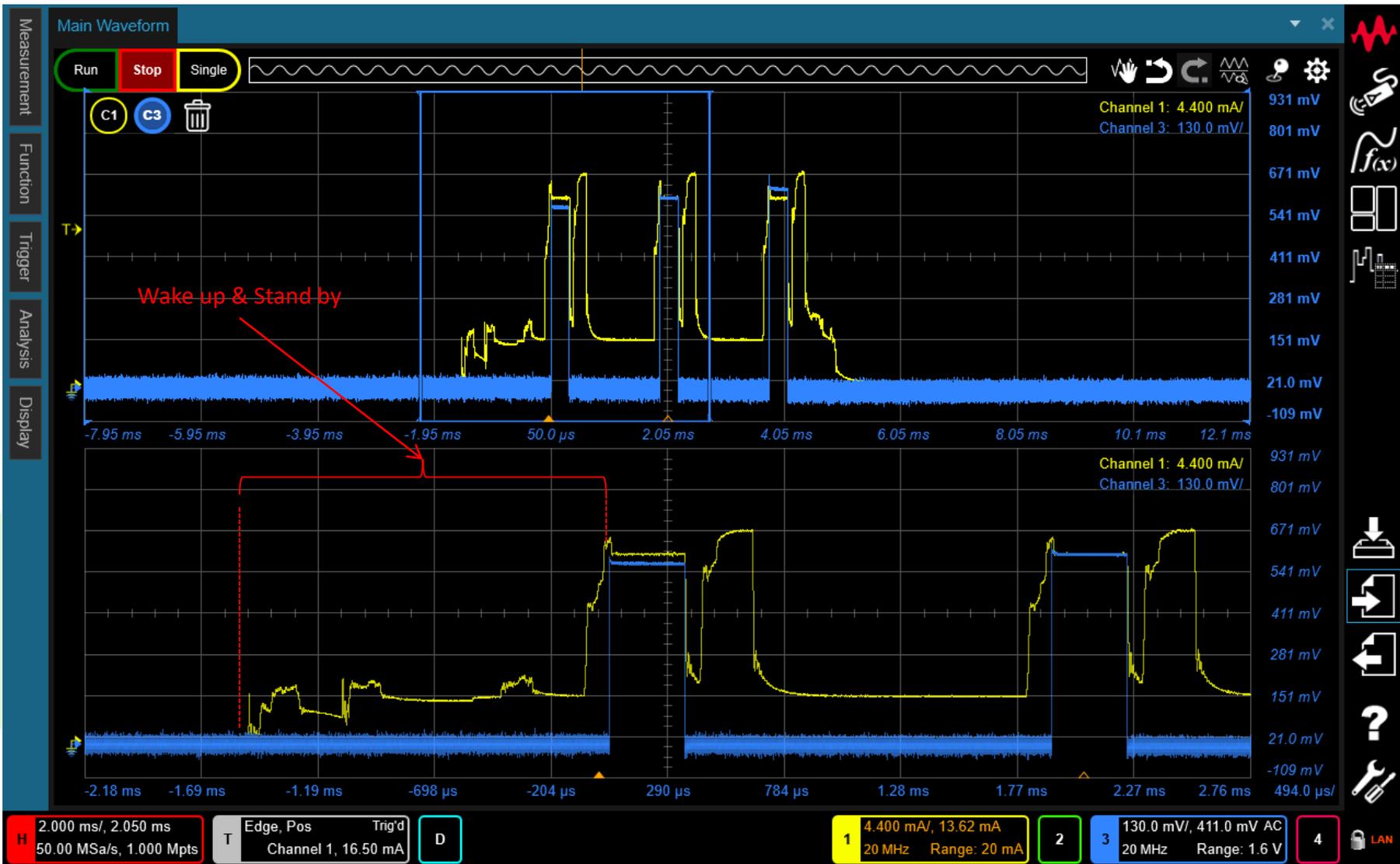
Frequency Domain

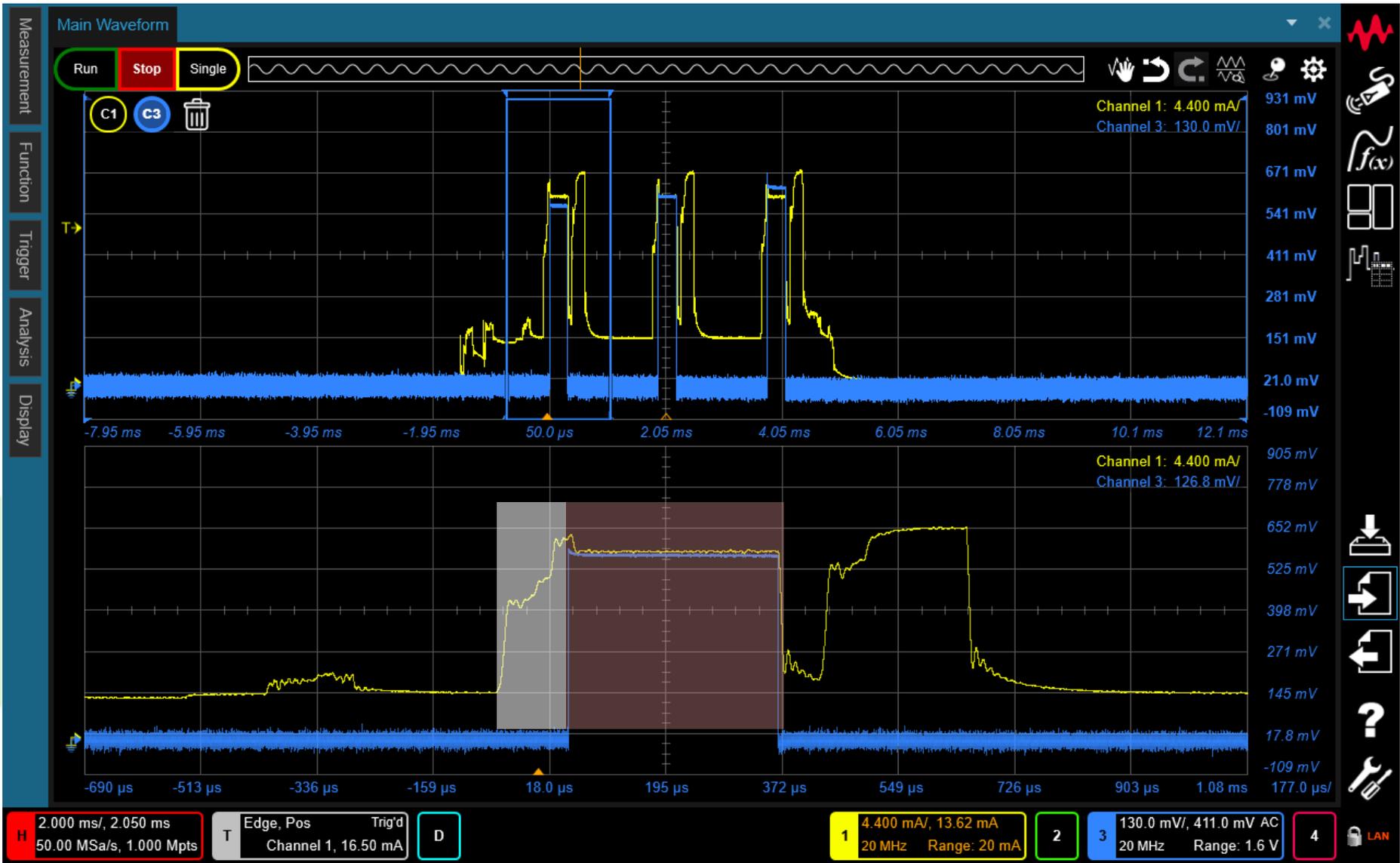










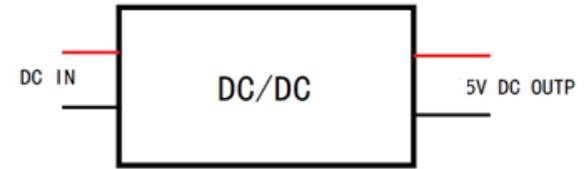


Automatic measurement



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 | Power 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

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



BenchVue Software

Control. Automate. Simplify.

ALL APPS

| | | |
|--|--|--|
|  BenchVue Complete Control Collection License for Use: Active Software Support: Expired |  100 Ω DMM BenchVue Digital Multimeter License for Use: Active Software Support: Expired |  BenchVue Education Control Collection |
|  ELOAD BenchVue Electronic Load License for Use: Active Software Support: Expired |  OSC Update BenchVue Oscilloscope License for Use: Active Software Support: Expired |  -3.0 dBm PM Update BenchVue Power Meter License for Use: Active Software Support: Expired |
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GPIB



USB

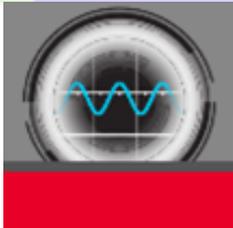


LAN

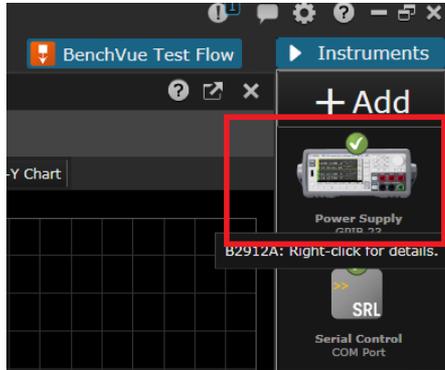


BenchVue Supported Instruments

| Data acquisition units (4) | Power meters/sensors (33) | Function generators (19) | Power supplies/SMUs (168) | Spectrum/signal analyzers (30) | Oscilloscopes (218) |
|--|--|---|--|---|---|
| 34970A 34972A DAQ970A 34980A | U2021XA ¹ U2022XA ¹ U2041XA ¹ U2042XA ¹ | 332x0A (3) 33500 Series¹ (10) 33600 Series¹ (4) 81150A 81160A | 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) | 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) | 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) |
| Digital multimeters (10) 34401A, 34405A, 34410A, 34411A, 34420A ¹ , 34450A ¹ , 34460A ¹ , 34461A ¹ , 34465A ¹ , 34470A 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 | 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) | | Electronic loads (4) N3300A ¹ N3301A ¹ 6060B 6063B | |
| Network analyzers (45) ENA E50xA/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 | | Current Analyzers (2) CX3322A CX3324A | | FieldFox analyzers (22) N9912A-N9918A (6) N9923A-N9928A (4) N9935A-N9938A (4) N9950A-N9952A (3) N9960A-N9962A (3) | Counters (3) 53210A ¹ 53220A ¹ 53230A ¹ |
| USB modular devices (21) U2300 Series ¹ U2500 Series ¹ U2600 Series ¹ U2700 Series ¹ | LCR Meters (2) E4980A E4980AL | | | | |



Easy connection and control



Test Flow- easy setting

The screenshot displays the Keysight BenchVue interface. On the left, the 'Power Supply // B2912A // GPIB 23' configuration window is visible, showing 'Output 1' settings. The 'Mode' is set to 'Voltage', and the 'Current' is set to '0.000 A'. The 'Current Limit' is '100 µA' and the 'Current Range' is '3.03 A'. The 'Log voltage' and 'Log current' options are checked.

On the right, the 'BenchVue Test Flow' window is open, showing a 'More Blocks' panel. A yellow arrow points from the 'Voltage' mode selection in the left window to the 'Set CH1 Priority Mode' block in the test flow. This block has a dropdown menu currently set to 'Current', with 'Voltage' and 'Current' as visible options. The test flow sequence includes a 'Power Supply GPIB0::23::INSTR' block.

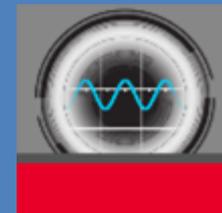
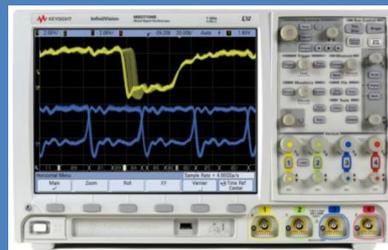
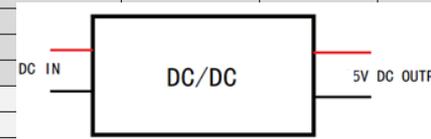
Test Flow- advance function

The screenshot displays the Keysight TestFlow software interface, divided into several panels:

- More Blocks:** A sidebar on the left containing two categories:
 - Basic Blocks:** Includes Delay, Wait Until, If Then Stop, If Then Else, Prompt, Ask User, Pass/Fail Test, and Group.
 - Loops:** Includes Count, Duration, While, Until, and Forever.
- Main Canvas:** A central workspace showing a test flow for a Power Supply (GPIB0::23::INSTR). The flow includes:
 - 1 - Set CH1 Priority Mode (Current)
 - Repeat While loop: Get CH1 Voltage Measurement (<= 4 V)
 - 1 - Get CH1 Voltage Measurement
 - 1 - Get CH1 Current Measurement
 - Delay 1 s
- Variables Panel:** A panel on the right showing a list of mathematical and logical functions, including Basic, Miscellaneous, Exponent and Logarithm, Logic and Relational, Constants, Trigonometry, Time, Unit Conversion, Statistics, String, and Advanced (Command Expert, SCPI, *RST, Run a Script, Export Data).
- Configuration Panels:** On the right, several configuration windows are open:
 - 1 - Set CH1 Priority Mode:** Set to Current.
 - Repeat While:** Get CH1 Voltage Measurement <= 4 V.
 - 1 - Get CH1 Voltage Measurement:** Teal block.
 - 1 - Get CH1 Current Measurement:** Teal block.
 - Delay:** 1 s.
 - 1 - SCPI:** Address: GPIB0::23::INSTR, B2912A; SCPI: RST; Is Query: [checked]; Validate button.
 - Export Data:** File Name: Flow Data 11; Export Target: Microsoft Excel; Export Path: C:\Users\baohualv\Documents...

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

1 - 设置 CH1 开启/关闭
● 开启 ● 关闭

2 - 设置 通道 1 开启/关闭
● 开启 ● 关闭

3 - 设置 CH1 开启/关闭
● 开启 ● 关闭

3 - 设置 CH1 操作模式
CC

1 - Vin
5 V, 12 V, 18 V, 编辑...

3 - Iout
From: 500 mA To: 2 A By: 500 mA

延迟 100 ms

1 - Iin
341.662 mA

4 - Vout
1.8459311 Vdc

3 - Pout
0 W

2 - 命令: 单次

2 - Vpk-pk
431.111 mV

设置
Pin = 1 - 获取 CH1 电压测量 995.834 mV × 1 - 获取 CH1 电流测量 356.41 mA
354.925 m

设置
Eff = Pin ÷ 3 - 获取 CH1 功率测量 0 W
+无限值

已运行 4 个循环/共 4 个循环

已运行 3 个循环/共 3 个循环

1 - 设置 CH1 开启/关闭
● 开启 ● 关闭

3 - 设置 CH1 开启/关闭
● 开启 ● 关闭

Set Power list

Set Load Sweep

输入变量名:
变量
符号 确定 取消
Eff
Pin
设置
输出

数学
高级
示例
1 - Power Supply Pro
SIM::6::INSTR

4 - Vout
1.9888393 Vdc

3 - Pout
0 W

2 - 命令: 单次

2 - Vpk-pk
-77.947 mV

设置
Pin = 1 - 获取 CH1 电压测量 995.834 mV × 1 - 获取 CH1 电流测量 356.41 mA
354.925 m

设置
Eff = Pin ÷ 3 - 获取 CH1 功率测量 0 W
+无限值

Auto calculate: $Eff = Pout / Pin$

Measurement Report

屏幕快照

BenchVue 测试流数据

MATLAB Microsoft Excel Microsoft Word **CSV**

将数据导出到 CSV 文件。

| | 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 Set | Current Set | Current Measurement | Measurement Value | Power Measurement | Measurement "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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- 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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元件電流波型分析儀



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資料擷取系統/電錶類



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