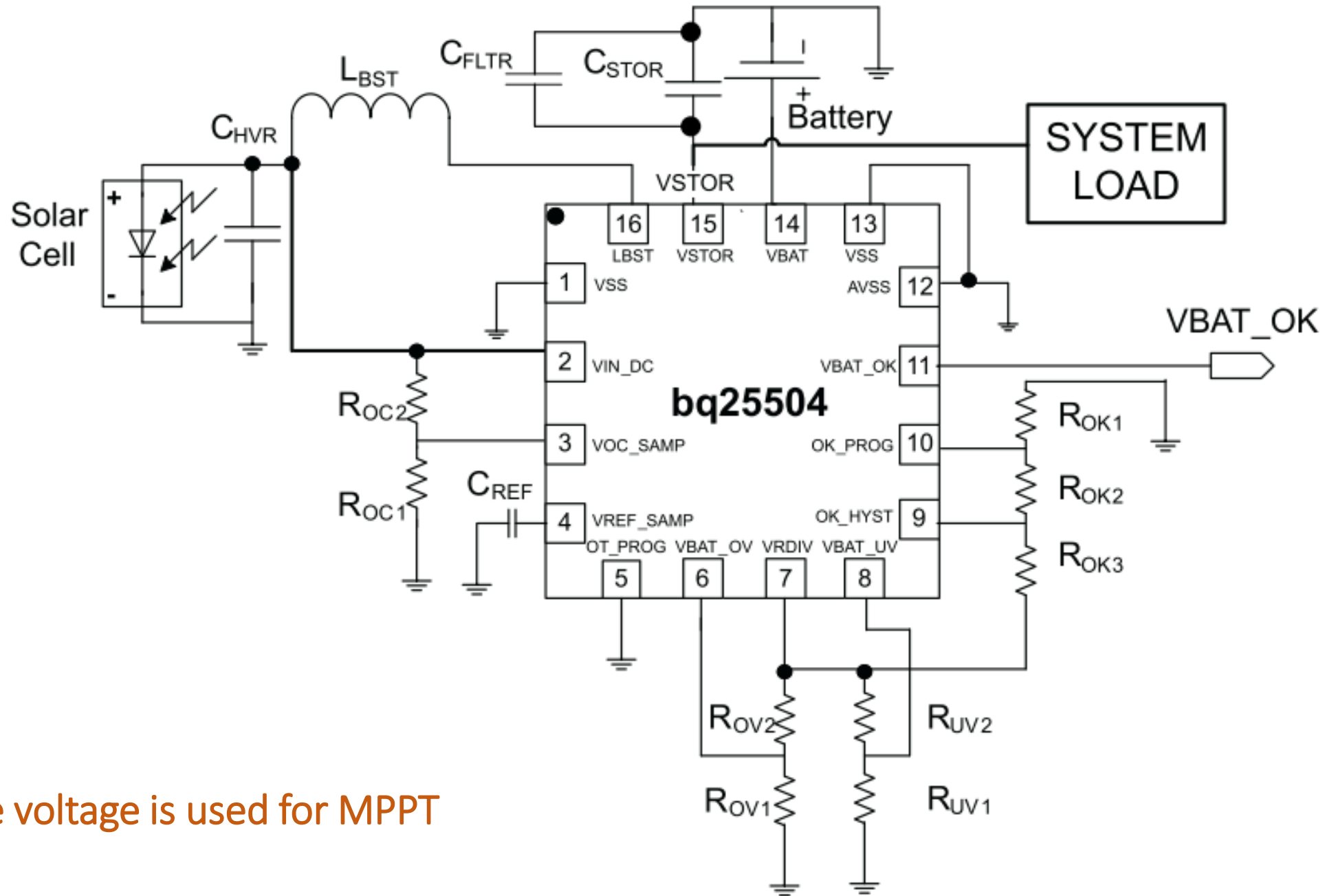


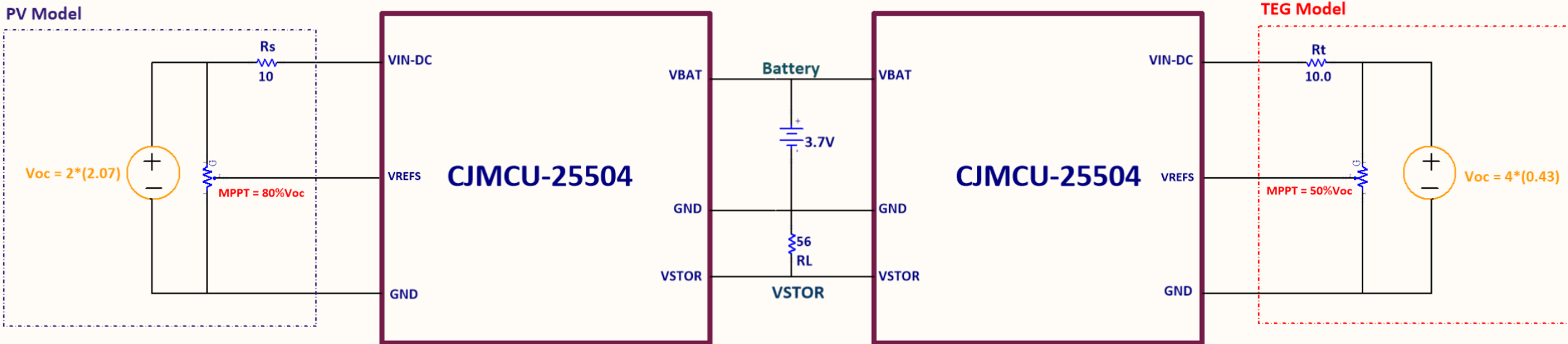
HYBRID CJMCU-25504

Zahra Tohidinejad

- ROK1 = 3.3M
- ROK2 = 6.2M
- ROK3 = 560k
- ROV1 = 4.3M
- ROV2 = 5.6M
- RUV1 = 3.9M
- RUV2 = 6.2M



An external reference voltage is used for MPPT



Schematic of the proposed structure

PV Information

Product and Ordering Information (Package Level)

Part Number	Open Circuit Voltage [V]	Short Circuit Current [mA]	Typ. Voltage @ P_{mpp} [V]	Typ. Current @ P_{mpp} [mA]
KXOB25-05X3F	2.07	19.5	1.67	18.4

(Parameters given are typical values)

Dimensions (L x W x H): 23 x 8 x 1.8 [mm]

SolarBITs Weight: 0.6 grams

Storage Temperature : -40°C ~ +90°C

Operation Temperature : -40°C ~ +90°C

SolarBITs are compliant to the RoHS Norm.

Electrical Characteristics

Symbol	Cell Parameter	Typical Ratings *	Units
V _{oc}	open circuit voltage	2.07	V
I _{sc}	short circuit current	19.5	mA
V _{mpp}	voltage at max. power point	1.67	V
I _{mpp}	current at max. power point	18.4	mA
P _{mpp}	maximum peak power	30.7	mW
FF	fill factor	> 70	%
η	solar cell efficiency	25	%
ΔV _{oc} /ΔT	open circuit voltage temp. coefficient	-5.22	mV/K
ΔI _{sc} /ΔT	short circuit current temp. coefficient	8.84	μA/K

* All values measured at Standard Condition: 1 sun (= 100 mW/cm²), Air Mass 1.5, 25°C

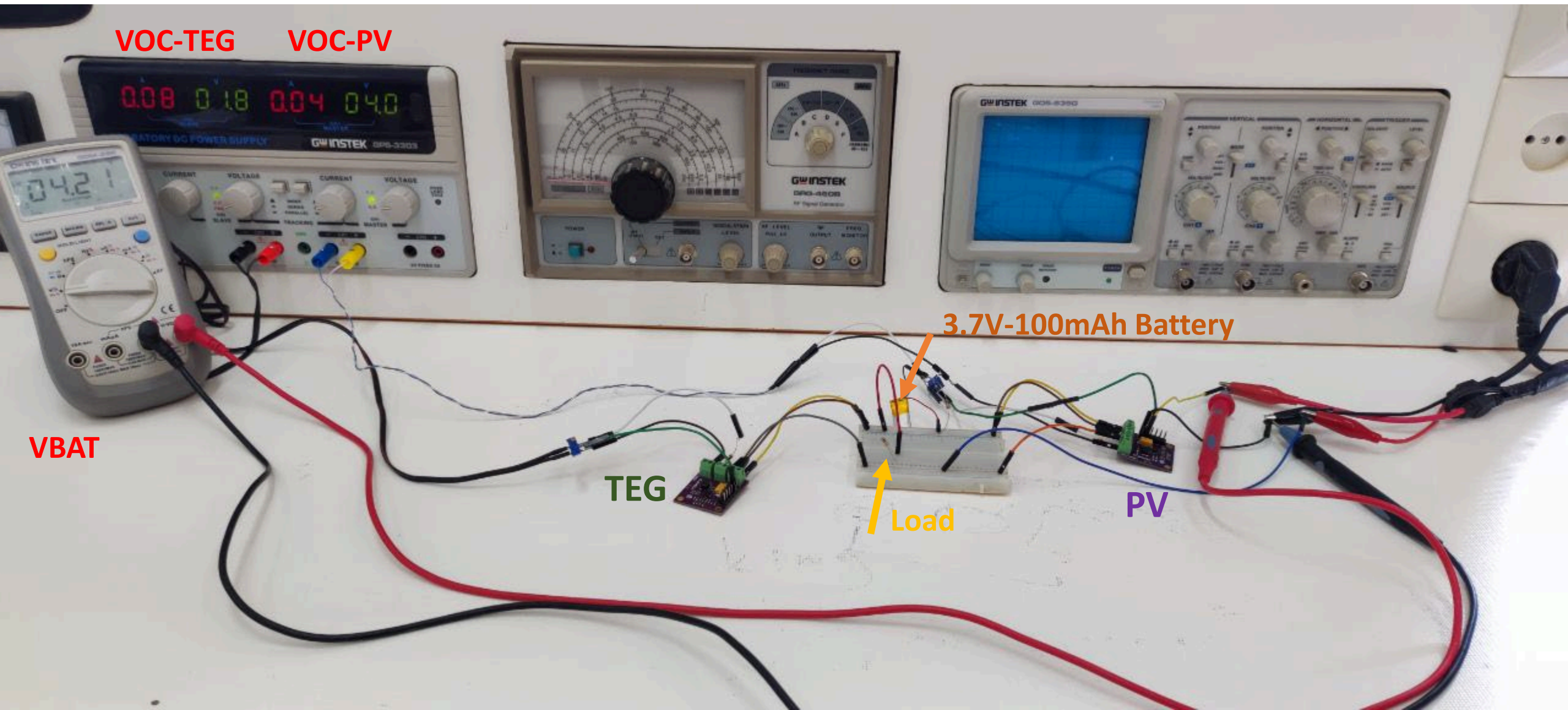
TEG Information

Performance data at Optimum
Load Resistance (Rload)

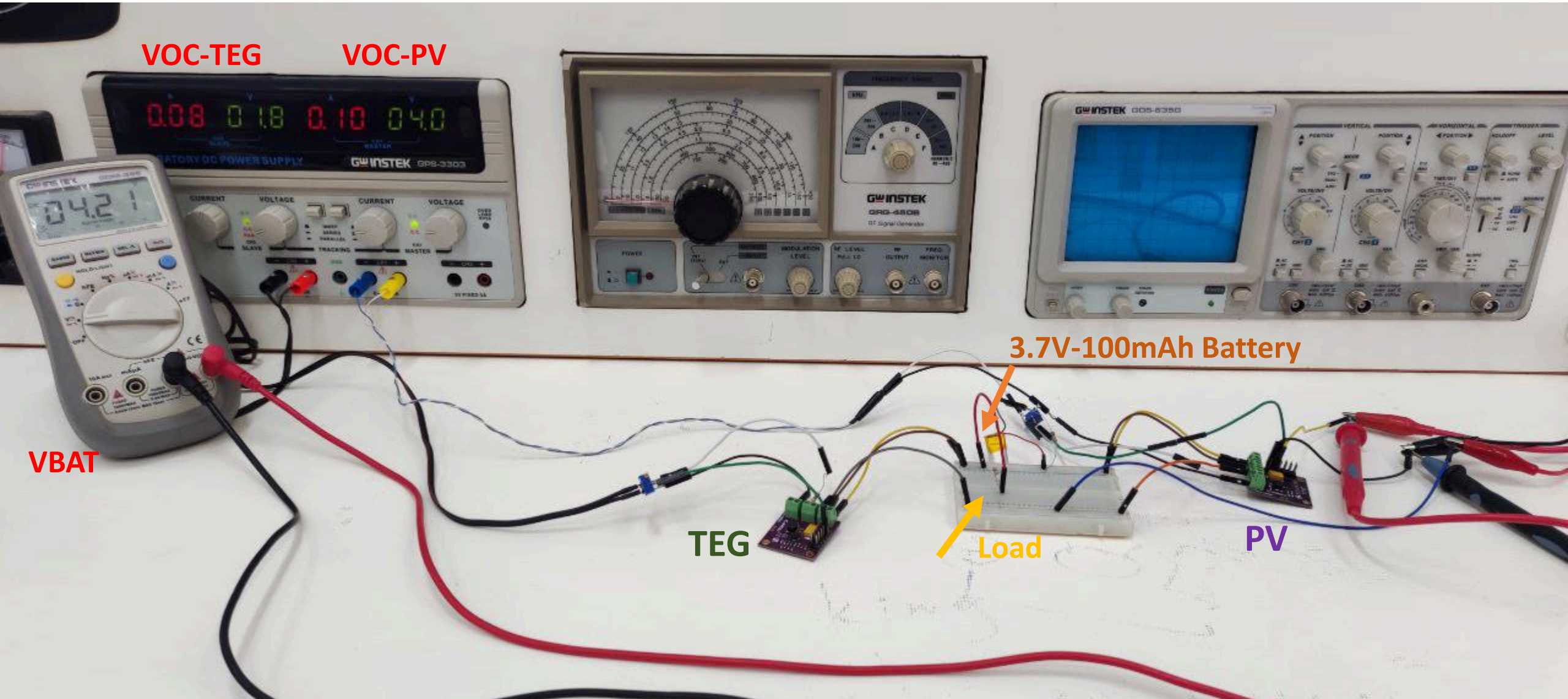
Parameter	Units	Values at Hot Side Temperature		
		85°C	55°C	35°C
Cold Side Temperature, Tcold	°C	27	27	27
Optimum Efficiency, Opt η	%	2.71	1.36	0.40
Optimum Power, Popt	W	0.964	0.233	0.020
Optimum Voltage, Uopt	V	1.825	0.868	0.244
AC Resistance, Rteg	Ohm	2.56	2.39	2.28
Optimum Load Resistance, Rload	Ohm	3.46	3.23	3.05
Open Circuit Voltage, Uoc	V	3.18	1.51	0.43
Short Circuit Current, Isc	A	1.24	0.63	0.19
Thermal Resistance, Rt	°C/W	1.63	1.63	1.63

Note: Power Generation performance charts are specified in Optimum conditions, dry air, with cold side temperature set at +27°C and 50°C. Heatsink thermal resistance is not included into estimations.

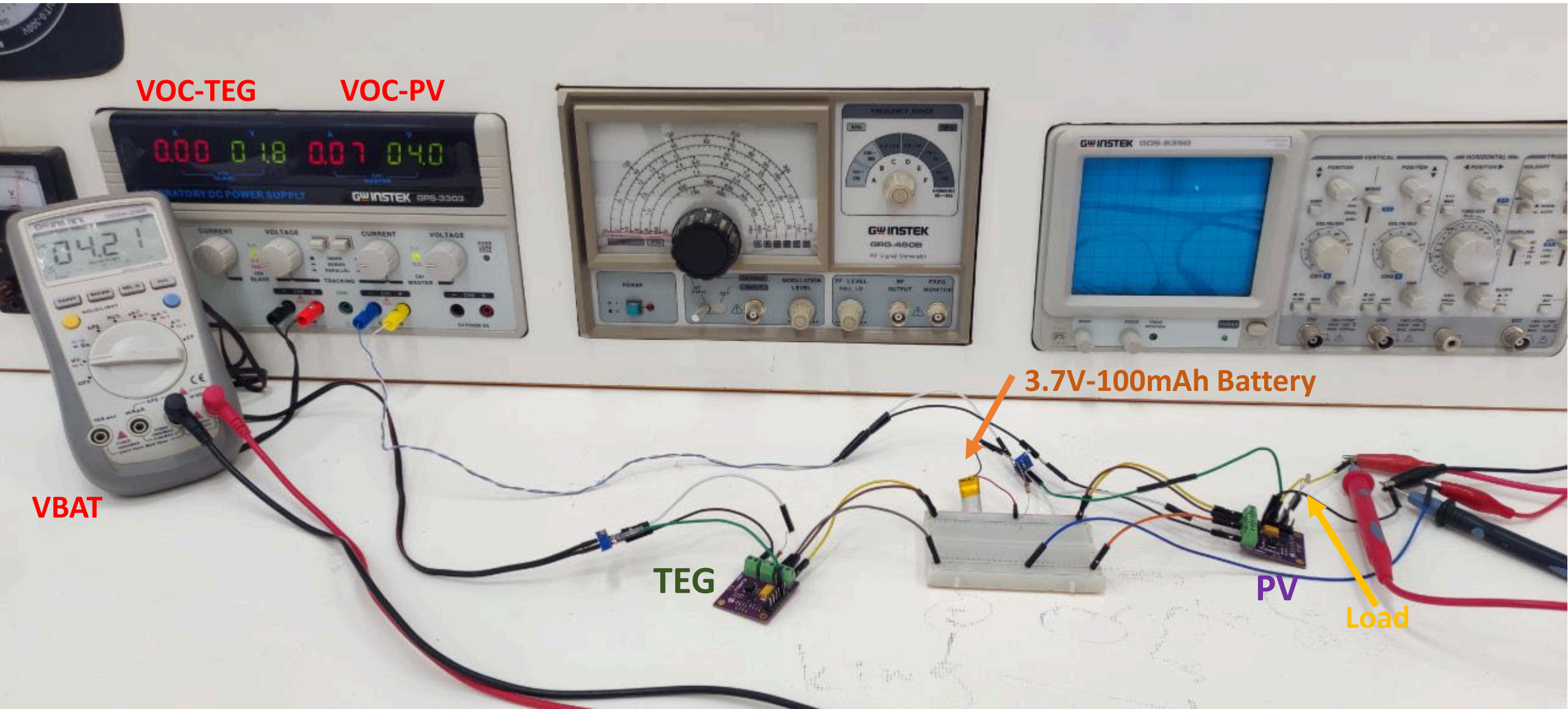
100 ohm load between two boards
Thermoelectric is MPPT.



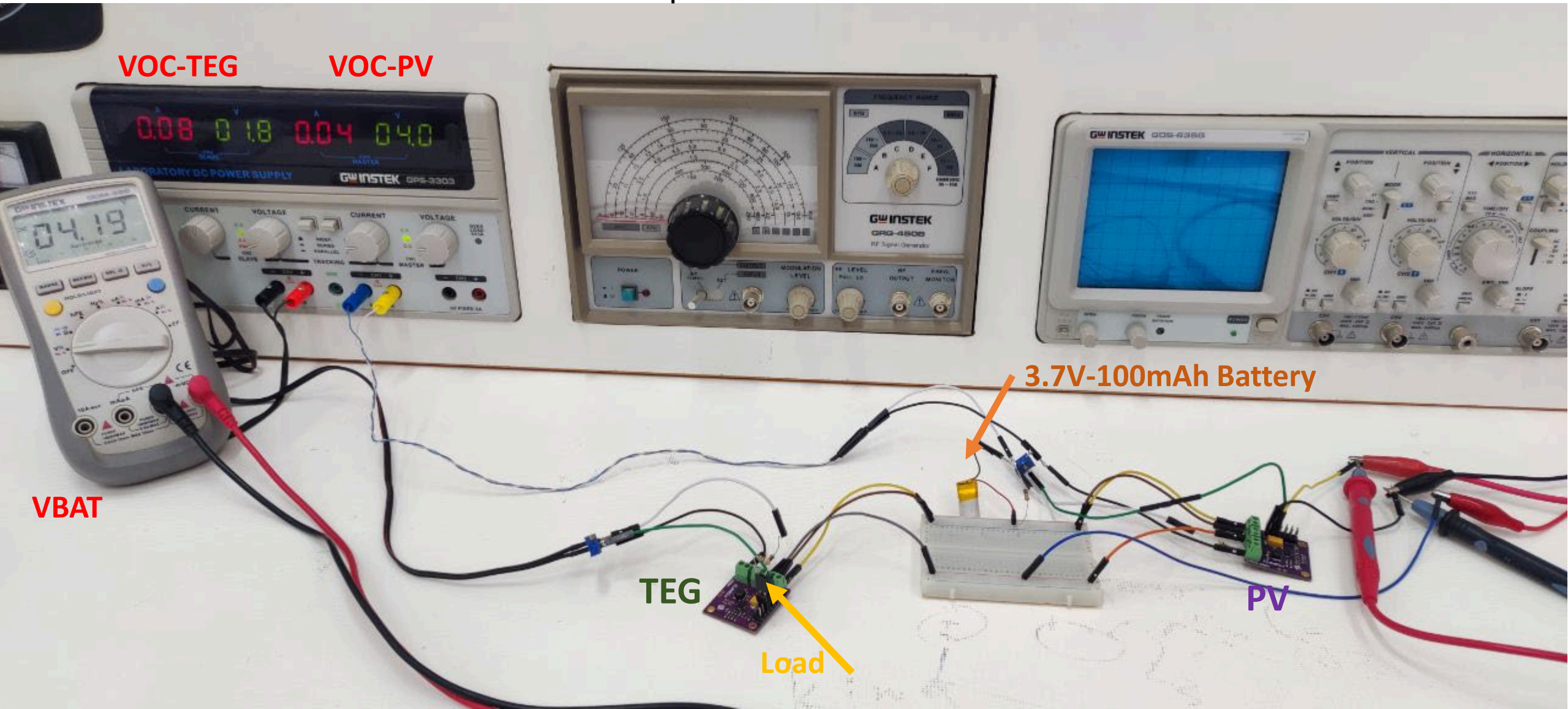
56 ohm load between two boards Both boards are MPPT



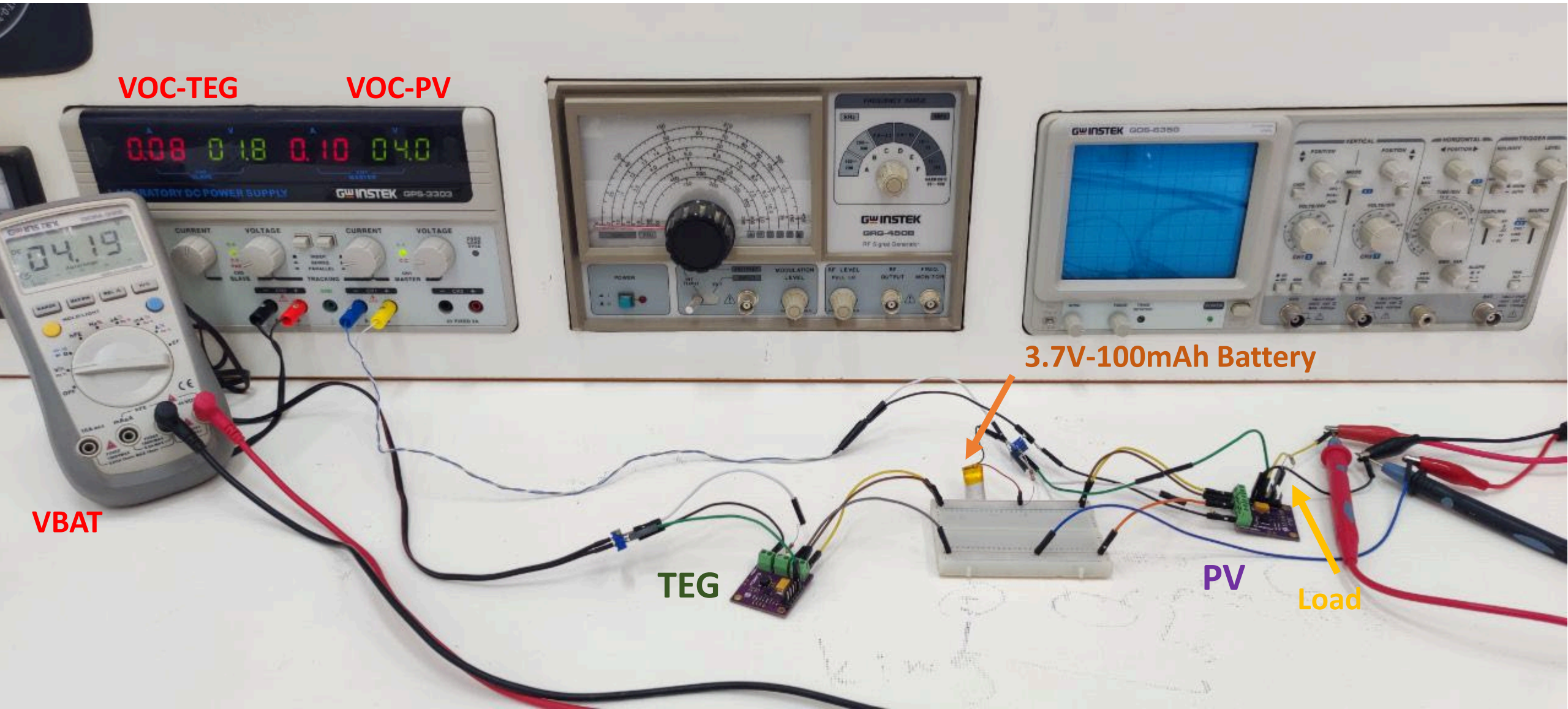
The 100 ohm load is on the PV board (right side).
PV is MPPT.



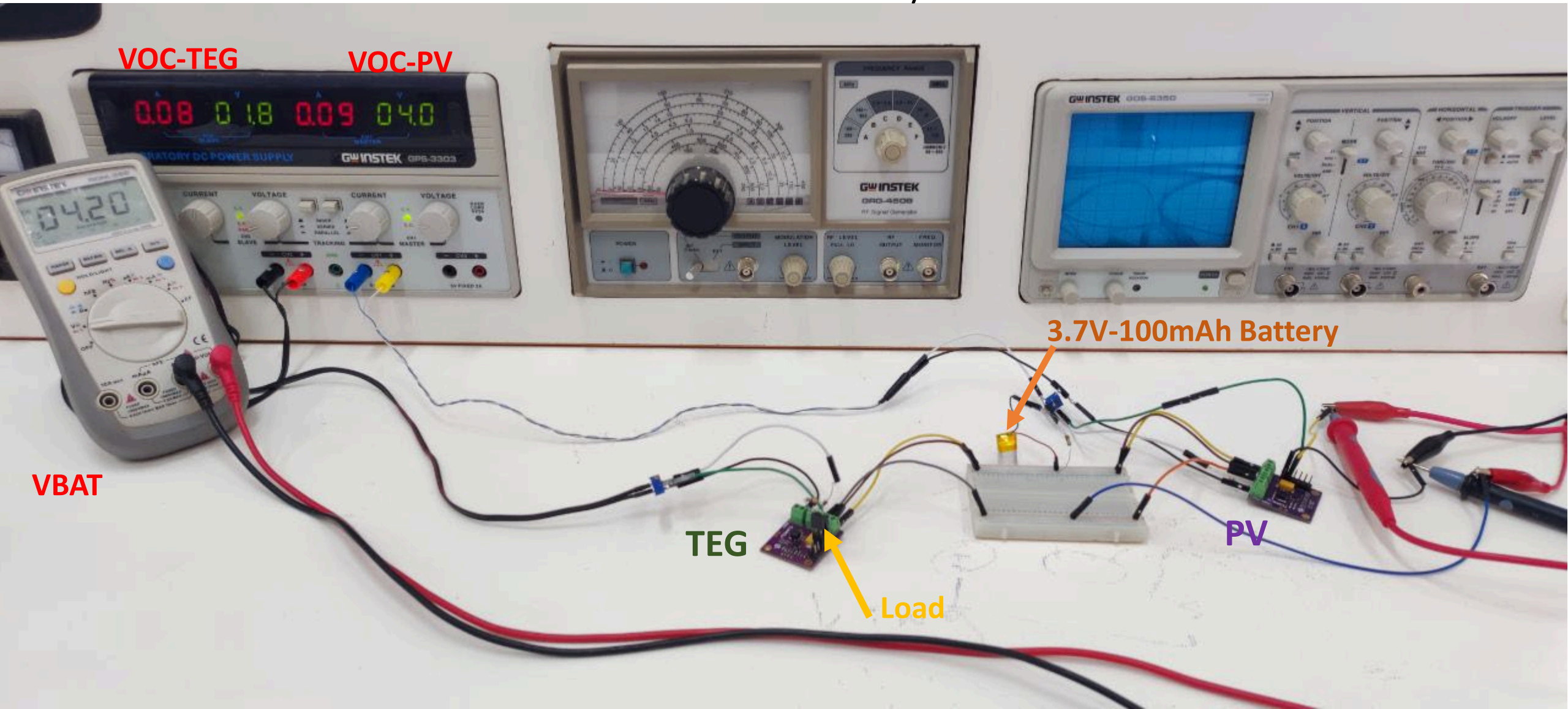
The 100 ohm load is on the TEG board (left side).
TEG is MPPT.
The PV input current is 40mA.



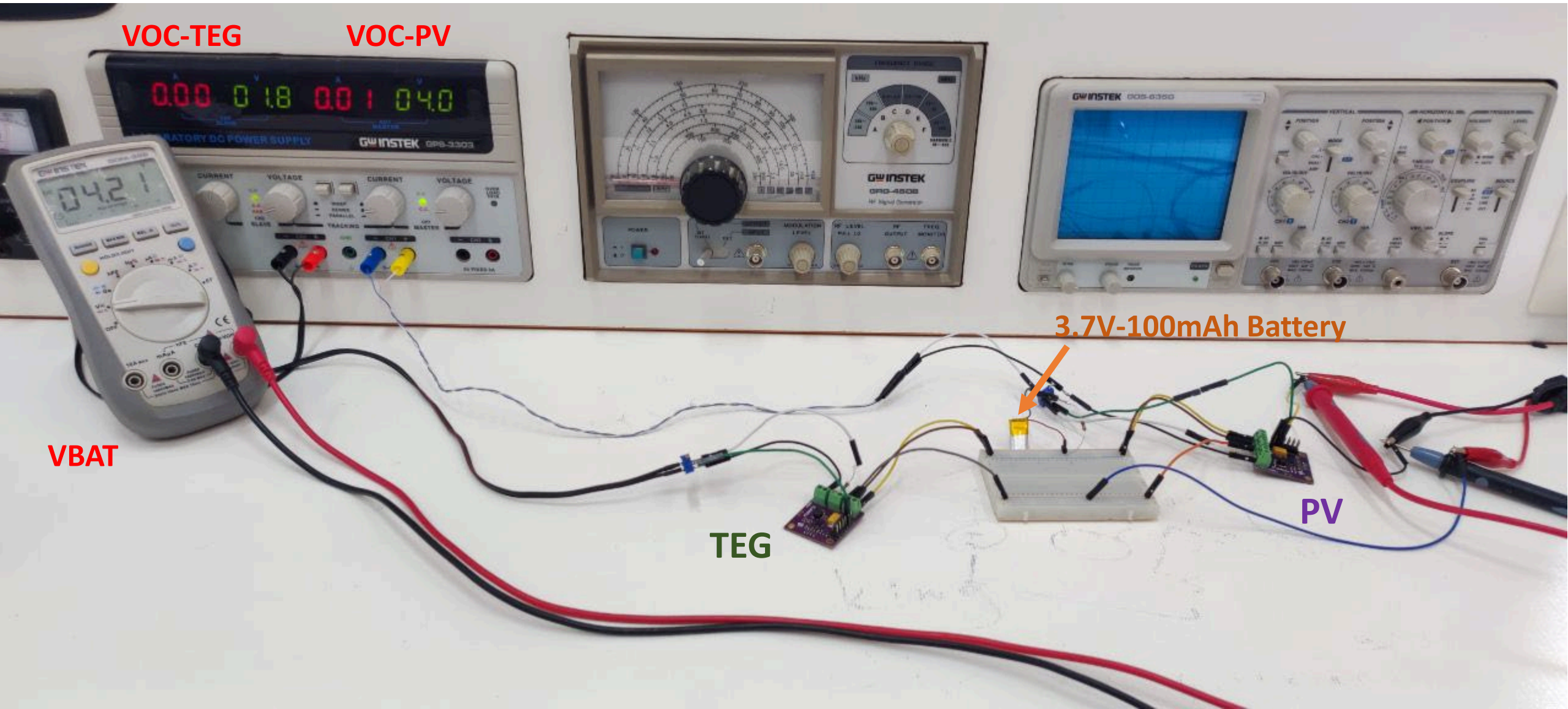
The 56 ohm load is on the PV board. (right side)
Both boards are MPPT.



The 56 ohm load is on the TEG board (left).
Both boards are MPPT
The current of the battery is +22.2 mA

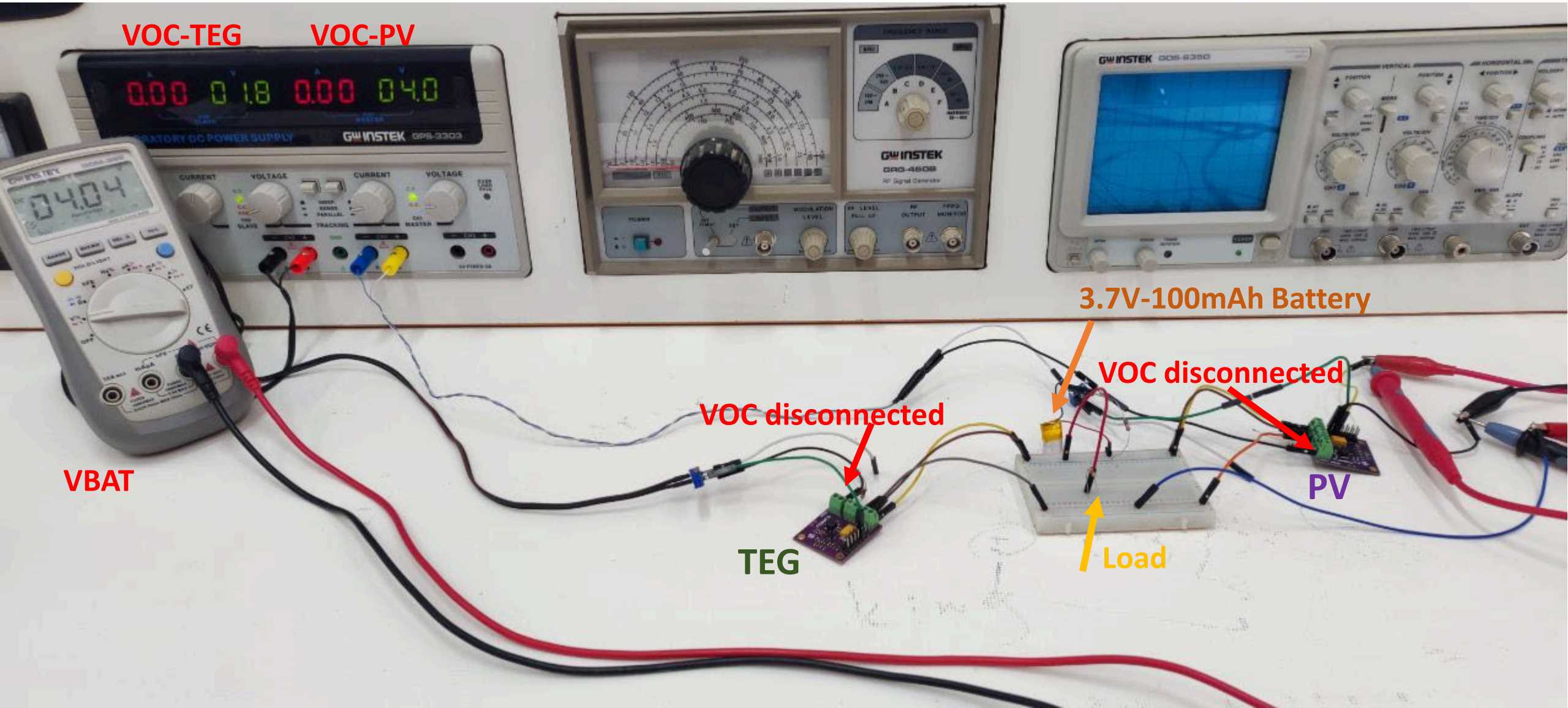


No load
Battery current +13 mA



Both input sources are disconnected.
100 ohm load between two boards.

$I_{BAT} = -44.4 \text{ mA}$
 $V_{STOR} = 4 \text{ V}$
Output power = 154 mW



Channel 1: VSTOR

Channel 2 : VBAT

After 53 minutes, no input sources and 100 ohm load between the two boards

