

## What a laptop does to the brain — and what a Q-Omega circuit changes

*Multi-sensor pilot study (EEG + heart + flow, single subject) — a measured problem, a signal to confirm*

**Level of evidence** : Observed in-house (EEG + optical pulsatility + cardiac) — the EMF problem is solidly measured (dose-response); the device effect is a preliminary convergent signal, n = 1, single comparison, no sham, order drift present

<b>Study type</b>	Multi-sensor pilot, single-subject crossover, 5 conditions — exploratory
<b>Subject</b>	One adult subject at rest (participant blinded to the condition)
<b>Measure</b>	Muse 4-electrode EEG + optical pulsatility (PPG) + accelerometer / gyroscope
<b>Conditions</b>	Reference · mains -Q · mains +Q-Omega · battery · off
<b>Solid result</b>	Gamma EEG ×2.8 on mains — dose-response (mains > battery > off)
<b>Preliminary signal</b>	3 sensors (brain, flow, heart) more stable with Q-Omega
<b>Status</b>	Problem measured; device effect to be confirmed — not proof

### Summary

Seventh EEG installment in the series, and the most methodologically advanced: a multi-sensor measurement (brain, heart, blood flow, movement) of a laptop's effect on a subject at rest, and of what adding a Q-Omega circuit changes. Two results of very different nature. First, solid and measurable: plugging the laptop into mains makes the EEG Gamma activity jump by +178% (×2.8), with a clear dose-response — mains > battery > off ≈ reference. The EMF problem is not imaginary; it leaves a measurable imprint at the head. Second, preliminary and convergent: under mains, adding the Q-Omega (placed contactless) is accompanied by a simultaneous drop in Gamma (-15%) AND in optical blood-flow variability (-60%), with the most stable heart rate of the session — three independent sensors, same direction. A rare strength: the participant was blinded to the condition (eyes closed, contactless Q), so the C signal is not an expectation placebo. But blinding does not correct the order drift (C comes after B). An encouraging body of evidence, not proof: n = 1, single comparison, no sham.

### 1. Background and objective

We live surrounded by always-on devices — computer, screen, Wi-Fi, wireless earbuds. The question is not ideological but instrumental: does this environment leave a measurable trace on the body, here and now? To find out, we do not debate — we plug in sensors.

We therefore recorded the brain (EEG), the heart and the circulation (onboard sensors) simultaneously in a subject at rest, across five situations of about one minute, one of them with a Q-Omega circuit placed contactless. A useful framing note: background electromagnetic exposure adds to all the day's other loads — including that of “health” wearables that themselves emit continuously.

### 2. Method

Single-subject crossover, fixed sequence, subject lying still, quiet room, eyes closed. Five conditions of about one minute:

- A — reference (no device).
- B — laptop on mains, without Q.

- C — laptop on mains, WITH Q-Omega (placed contactless).
- D — laptop on battery, without Q.
- E — laptop off, without Q.

Equipment: Muse EEG headset (4 electrodes) + onboard sensors (optical pulsatility PPG, accelerometer, gyroscope), Mind Monitor app, ~1 Hz sampling. EEG powers as the 4-electrode average, linear scale.

**Blinding quality (key point).** The most important contrast — B (mains without Q) vs C (mains with Q) — is blinded: the Q is placed contactless and the configuration is identical, so the participant had no sensory cue to tell them apart. The signal observed in C therefore cannot be explained by “he knew the Q was there.”

**Artifact control.** The subject is nearly motionless in all conditions (accelerometer / gyroscope at very low variability) and EEG contact quality is excellent (90–100%). Neither the Gamma rise, nor the flow or heart variations, are movement artifacts.

**What is still missing.** No sham condition, non-blinded operator, a single pass per condition, sequence never reversed.

### 3. The problem is real — Gamma dose-response to mains

**OBSERVATION** All measures, all conditions. Highlighted rows = key markers (brain, flow, heart).

Measure	A Ref.	B Mains -Q	C Mains +Q	D Batt.	E Off
<b>Gamma EEG (brain)</b>	0.93	2.59	2.20	1.38	1.18
Beta EEG	2.16	2.78	2.99	3.15	2.73
Alpha EEG	3.44	3.59	3.29	3.47	2.84
Theta EEG	1.51	1.31	1.19	1.16	1.11
Delta EEG	2.55	2.28	1.12	0.94	0.81
Mean HR (bpm)	70.1	69.4	69.1	67.4	65.7
<b>HR successive variab. (proxy)</b>	0.27	0.21	0.14	0.19	0.26
<b>Optical pulsatility (CV %)</b>	0.60	0.87	0.35	0.38	0.35
Movement (gyro, SD)	2.03	0.22	0.09	0.11	0.20

The most telling marker is Gamma. At rest (A), it is low (0.93). As soon as the laptop is plugged into mains (B), it jumps to 2.59 — +178%, a clear step, not a slow drift. It then declines with the electrical intensity of the source: mains (2.59) > battery (1.38) > off (1.18) ≈ reference. This is a dose-response: the more electrically active the source, the more marked the effect at the head.

This band captures both cortical activity and the mains 50 Hz field; in either case, exposure produces a real, measurable effect. Movement being negligible everywhere, it is not an artifact.

### 4. The convergent signal with Q-Omega

**OBSERVATION** Three independent sensors in the mains condition, with and without Q-Omega (same table, columns B and C).

Under mains without Q (B), both Gamma and optical blood-flow variability rise above the reference. With Q-Omega (C), both come back down: Gamma -15% (2.59 → 2.20) and optical pulsatility -60% (0.87 → 0.35, its lowest value). In parallel, heart rate is the most stable of the whole session (successive variability 0.14, the lowest).

What makes this body of evidence interesting: Gamma (cerebral electrophysiology) and optical pulsatility (peripheral hemodynamics) are two measures of different nature. That they move in the same direction, at the same moment, makes the “mere noise” explanation less likely.

## 5. Blinding vs order drift — two distinct limitations

Two clearly distinct limitations, which must be separated:

**The blinding (in favor of the signal).** The participant was unaware of the Q’s presence and conditions B and C were sensorially identical. The effect observed in C is therefore not an expectation placebo — a rare point in this field.

**The order drift (against a conclusion).** Heart rate and Delta fall monotonically across the session (HR 70 → 69 → 69 → 67 → 66). Since the sequence was never reversed, part of C’s apparent “calm” may reflect this drift rather than the Q. Blinding neutralizes perception bias; it does not correct order drift.

**The nuance that holds (in between).** Gamma and pulsatility, however, RISE in B before coming back down in C. This “rise then attenuation” profile resists the simple-monotonic-drift explanation better than a signal that would only descend. That is what makes the body of evidence credible — without turning it into proof.

## 6. Interpretation — hypotheses (unproven)

**HYPOTHESIS**  $n = 1$ , a single B→C comparison, no sham: what follows is a lead, not a result.

**Stabilization under Q-Omega.** The convergence of the three markers toward greater stability is compatible with a stabilizing effect in the presence of the mains load — but remains compatible, in part, with the order drift. To be confirmed in an alternated protocol.

**Consistency with the circuit’s role.** Q-Omega is the “day / environment” circuit of the range; a counterweight role against an environmental load (the mains) is consistent with that use, without proving it.

**The EMF problem, for its part, is solidly measured; the role of Q-Omega remains a preliminary convergent signal, to be validated.**

## 7. Limitations

- $n = 1$ , ~1 min per condition, a single pass: descriptive, non-causal.
- Fixed sequence never reversed: order drift observed on HR and Delta, not corrected by blinding.
- No sham condition; non-blinded operator (the participant, however, was blinded to the condition).
- Single Q vs no-Q comparison (B→C): no within-subject replication.
- The Gamma band also captures the mains 50 Hz field: the effect is real and measurable, but its fine decomposition requires a dedicated protocol.

## 8. The protocol that turns the signal into proof

To turn the body of evidence into proof:

- Alternate B-C-B-C-B-C (mains without Q / with Q repeated) to separate the Q effect from the drift.
- True two-sided blinding + sham (an identical sham circuit placed by a third party).

- Longer sessions ( $\geq 3\text{--}5$  min), cohort  $n \geq 10$ .
- Pre-registered criteria: Gamma EEG + optical pulsatility + cardiac variability, Q vs sham.
- Field measurement in parallel (gauss-meter / magnetometer) to link the physiological effect to the physical EMF.

## 9. Conclusion

On this multi-sensor pilot, one thing is solid: the laptop plugged into mains multiplies the Gamma activity measured at the head by  $\sim 2.8$ , with a clear dose-response mains > battery > off. The background EMF imprint is real and measurable — not imaginary. Another is promising but preliminary: in the presence of this load, adding the Q-Omega is accompanied by three independent markers (brain, flow, heart) shifting toward greater stability, measured while the participant was blinded to the condition. There remains the order drift, which blinding does not correct, and the absence of a sham and of replication. We therefore lead with the proven problem, and present Q-Omega as a convergent signal to validate — with alternated blinding, a sham and a cohort, and field measurement in parallel. Framing: an exploratory pilot study; the problem is measured, the device effect remains to be confirmed; with no medical claim.

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*Source: Muse 4-electrode EEG + onboard sensors (optical pulsatility PPG, accelerometer, gyroscope), Mind Monitor,  $\sim 1$  Hz sampling; values recomputed from the raw CSV. Single subject, five conditions  $\sim 1$  min, fixed sequence; participant blinded to the condition, non-blinded operator, no sham. Unaudited internal data. Not a medical claim.*