Resting EEG during a daytime nap — Q-Omega circuits on the feet versus without

EEG pilot study (single subject, two sessions) — a slow-wave profile, and everything it does not prove

Level of evidence : Observed in-house (daytime resting EEG, Muse S Athena AF7/AF8, TP9/TP10) — pilot study n = 1, two sessions on two days at different times, non-blinded, conflict of interest declared; daytime nap, NO sleep stages or sleep quality measured

Study type	Within-subject EEG pilot, 2 sessions / 2 days — exploratory
Subject	One subject — the inventor of the technology (conflict of interest declared)
Measure	Muse S Athena EEG + Mind Monitor (AF7/AF8, TP9/TP10), during a daytime nap
Conditions	WITHOUT (nothing) vs WITH-Q (Q-Omega circuits on the feet)
Scope	Daytime resting EEG (≈ 1 h) — NO sleep stages or sleep quality
Marker	Slow waves (Delta), vigilance (Beta), heart rate
Status	Hypothesis generated — no effect on sleep established

Summary

Ninth EEG installment in the series. Two daytime naps of about one hour, on two consecutive days, with an EEG headband: the first with nothing, the second with the Q-Omega circuits placed directly on the feet. A clarification up front, and non-negotiable: this is a daytime resting EEG, NOT nocturnal sleep — the headband battery does not last a night, there are no sleep stages, no ring, no reference sensor to cross-check. So we describe what the headband recorded during two naps, nothing more. Observation: in the Q condition, the EEG is more dominated by slow waves (Delta 31.5% → 37.5%), with less vigilance (Beta 11.9% → 9.9%) and a lower heart rate (70.2 → 65.8 bpm) — a coherent bundle consistent with deeper rest, reached earlier and maintained longer. But the two naps took place on different days AND at different times (4:30 p.m. vs 2:15 p.m.): this double shift, on its own, can explain everything. Both readings hold: hypothesis generated, no effect on sleep established. Conflict of interest declared: the subject is the inventor.

1. Transparency — conflict of interest and scope

Conflict of interest declared. The single subject is the inventor of the technology and the founder of the entity that markets it. Exploratory, descriptive, non-blinded study: it generates hypotheses, proves nothing, and constitutes no health claim.

Exact scope, to read first. This is a daytime nap test (≈ 1 h), not nocturnal sleep cycles — the headband's battery does not allow it. The only data are the headband's raw recordings: no sleep-stage report, no health-app data, no ring or reference sensor to cross-check. This report therefore describes a daytime resting EEG — never a sleep "architecture" or an objectified "sleep quality." Any mention of "stages" or "cycles" would be unfounded.

2. Background and objective

During a nap, the EEG gradually slides from quiet wakefulness (Alpha-dominant) toward drowsiness and light sleep: slow waves (Theta then Delta) rise, vigilance (Beta) recedes. Comparing the spectral composition of a nap in two conditions — nothing, then Q-Omega circuits on the feet — makes it possible to describe whether the resting profile differs.

The goal is not to demonstrate an effect on sleep, but to honestly describe what the headband recorded during two naps.

3. Method

Within-subject study (n = 1), two sessions on two consecutive days, one condition per day:

Condition	Date / time	Duration	EEG samples
WITHOUT	Aug 30, 2025, 2:15 p.m.	64 min	3,849
WITH-Q (Q-Omega)	Aug 31, 2025, 4:30 p.m.	55 min	3,304

In the WITH-Q condition, the Q-Omega circuits were placed directly on the feet (without an insole). In the WITHOUT condition, no circuit was present. No other variable was controlled between the two days. Muse S Athena headband + Mind Monitor; frontal electrodes AF7/AF8 and temporal TP9/TP10; relative composition after linearization (10^x), averaged over the 4 channels.

What was NOT measured. Daytime nap (≈ 1 h), not a full night. No sleep-stage report, no objective metric (latency, duration, awakenings, efficiency), no cross-validation (no health app, no ring or reference sensor).

4. Results — what was measured

OBSERVATION Only what was measured (relative spectral composition and state indicators). Possible mechanisms are addressed in the next chapter, as hypotheses.

Band	WITHOUT	WITH-Q	Δ (points)
Delta (slow waves)	31.5%	**37.5%**	+6.1
Theta	17.7%	17.9%	+0.2
Alpha	35.7%	31.7%	−4.0
Beta (vigilance)	11.9%	**9.9%**	−2.0
Gamma	3.3%	3.0%	−0.3

Observed facts: in the Q condition, the Delta share rises (+6.1 points) while Alpha and Beta decrease; Theta and Gamma are nearly stable. Over the course of the session, both naps climb toward a Delta peak around the 40th–50th minute (≈ 49–51%); but the Q session shows a higher Delta share from the start (≈ 33–37% at minutes 10–30, vs 24–25% without) and maintains it longer, whereas the WITHOUT session drops markedly at the end (26% then 20%).

Resting-state indicators:

Indicator	WITHOUT	WITH-Q
(Delta+Theta)/(Alpha+Beta) ratio	1.33	**1.61**
Theta/Beta ratio	1.88	2.24
Mean heart rate (bpm)	70.2	**65.8**
Movement (accel SD)	0.020	0.017
Blinks detected	59	34
Signal quality (good HSI)	98–100%	99–100%

Observed facts: mean heart rate is lower in Q (−4.4 bpm), with less movement and fewer blinks. Signal quality is excellent in both conditions.

5. Interpretation — hypotheses (unproven)

HYPOTHESIS One subject, one session per condition, different days and times: what follows is a lead to test, not an established result.

Deeper rest. The rise in Delta, the drop in Beta and the lower heart rate form a bundle consistent with deeper daytime rest during the Q session. Hypothesis to confirm.

Dominant alternative explanation. The Q session took place on another day and later (4:30 p.m. vs 2:15 p.m.). Greater fatigue that day, or a simple mid-afternoon circadian dip, would be enough to produce the same profile with no circuit effect at all. It is the most mundane explanation, and it cannot be ruled out.

Caution on Delta. Delta is the band most sensitive to slow drifts and artifacts; here the risk is reduced (excellent signal, little movement) but not nil.

Unequal durations. 64 min vs 55 min: the proportion of time spent in each nap phase is not strictly comparable.

Both readings hold. The study generates a testable hypothesis about daytime rest; it establishes no effect on sleep.

6. Limitations

- n = 1, one session per condition: descriptive, non-causal.
- Different day AND time: dominant confounder; the circuit effect is not separable from the day/time effect.
- Nap, not sleep: ≈ 1 h daytime; no stages, no objective sleep metric.
- No placebo, no blinding, no cross-validation (ring / health app / reference sensor).
- Different durations (64 vs 55 min).

7. Next iteration

To settle it cleanly:

- Full nocturnal recordings, several nights per condition.
- Same bedtime, to neutralize the day / time shift.
- Blinded with a placebo (an identical-looking inert pair) if possible.
- Use of a sleep mode (stages) or a reference device to cross-check.

8. Conclusion

During this nap, the EEG recorded in the Q-Omega condition was more dominated by slow waves (Delta ↑, Beta ↓), with a lower heart rate — a profile consistent with deeper daytime rest, reached earlier and maintained longer. These observations are coherent with one another, and equally compatible with a simple difference of day and time. Both readings hold: the study generates a testable hypothesis, it establishes no effect on sleep — which it did not, in fact, measure. Settling it will require full nights, at a fixed time, blinded with a placebo, and genuine stage tracking. Measurement over belief — even when the result is a question mark. Framing: an exploratory pilot study, to be confirmed, with no medical claim; daytime resting EEG, no sleep stages.

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Source: Muse S Athena EEG + Mind Monitor (raw CSV), electrodes AF7/AF8 and TP9/TP10, relative composition after linearization. Single subject, two sessions on two days at different times, non-blinded, conflict of interest declared. Daytime nap (≈ 1 h): resting EEG, no stages or sleep quality measured. Unaudited internal data. Not a medical claim.