# Which circuit for the night? Nocturnal EEG of Q-Theta, Q-Alpha and Q-Omega

*EEG pilot study (single subject, several nights) — the right circuit at the right moment*

**Level of evidence :** Observed in-house (nocturnal EEG proxies, early night) — exploratory trends, n = 1/condition, one night/circuit, unequal durations, no polysomnography; conflict of interest declared; R&D hypotheses, not proof

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|---|---|
| **Study type** | Nocturnal EEG pilot, circuit comparison — exploratory, n = 1/condition |
| **Subject** | One subject — the inventor of the technology (conflict of interest declared) |
| **Measure** | Muse EEG + Mind Monitor (early night) · sleep proxies |
| **Circuits compared** | Q-Theta · Q-Alpha · Q-Omega (+ no-circuit night) |
| **Markers** | Delta/Beta, deep %, alpha intrusion, nocturnal HR, movement (composite score) |
| **Angle** | “The right circuit at the right moment” — rest pole vs wake pole |
| **Status** | Exploratory trends — R&D hypotheses, not proof |


## Summary

Fifth EEG installment in the series, and the first to compare the whole range on a single function: sleep. Across several nights recorded with an EEG headset (Muse, early night), three commercialized circuits were compared via recognized sleep proxies — depth (Delta/Beta), alpha intrusion (fragmentation), nocturnal heart rate, movement. Clearest trend: among the commercialized range, Q-Theta shows the most rest-favorable profile (high depth, low agitation, moderate HR), followed closely by Q-Alpha; Q-Omega instead shows a more activating profile (higher HR, lighter, agitated sleep) — consistent with its DAYTIME use. The useful reading is therefore not “which circuit is best,” but “the right circuit at the right moment”: rest pole (Q-Theta, Q-Alpha) vs wake pole (Q-Omega). Exploratory trends: n = 1 per condition, short and unequal nights, proxies (no polysomnography). Hypotheses, not proof. Conflict of interest declared: the subject is the inventor.


## 1. Background and objective

There is a lot of “sleep better” on sale. Rarely is it measured. The question here is not marketing but instrumental: does an EEG headset reveal different sleep signatures depending on the circuit worn at night? And if so, do those signatures outline a coherent use per circuit?

A useful reference point: Q-Theta has a signature publicly associated with the Schumann resonance (7.83 Hz), a slow, soothing register — so we would expect to see it on the rest side. That is an expectation to confront with the data, not a conclusion.

## 2. Method and proxies

**Conflict of interest declared.** The subject is the inventor of the technology; the study is exploratory, descriptive and non-blinded. It generates R&D hypotheses, it proves nothing, and constitutes no health claim.

**Proxies, not polysomnography.** Lacking polysomnography and true heart-rate variability, sleep quality is estimated via recognized EEG/cardiac proxies, computed second by second on the valid electrodes (quality control: headband in place):

- Delta/Beta: sleep depth vs cortical activation (higher = deeper).
- deep %: proportion of seconds in sustained delta dominance (higher = better).
- Alpha intrusion (%): wake / fragmentation marker (lower = better).
- Mean nocturnal HR: autonomic recovery (lower = better).
- Movement (accelerometer): nocturnal agitation (lower = better).

A composite score combines these five axes (depth and deep % positive; alpha intrusion, HR and movement negative), z-scored. Higher = a more restorative night. Conditions: one night per circuit, single subject.

## 3. Night ranking

**OBSERVATION** Night ranking by composite score — commercialized circuits (depth and deep % count positively; alpha intrusion and HR negatively).

| Circuit | Score | Delta/Beta | deep % | alpha-intr. % | HR (bpm) |
|---|---|---|---|---|---|
| **Q-Theta** | **+0.48** | 3.89 | 14.4 | 15.6 | 68 |
| Q-Alpha | +0.43 | 3.13 | 16.9 | 13.9 | 67 |
| No circuit (baseline) | +0.24 | 2.75 | 16.9 | 16.5 | 64 |
| Q-Omega | −0.53 | 0.79 | 14.5 | 17.3 | 71 |

Among the commercialized range, Q-Theta leads for sleep (highest score, high Delta/Beta depth, agitation among the lowest), followed closely by Q-Alpha. The no-circuit night (baseline) sits between the two poles. Q-Omega comes last for pure sleep: collapsed depth (Delta/Beta 0.79), higher HR, a light and phasic sleep profile.

This last point is not a flaw: Q-Omega is the circuit worn by DAY by the subject — a wake / performance profile is exactly what one would expect on the night it is kept on.

## 4. Circuit by circuit

**Q-Theta.** High depth, agitation among the lowest, moderate HR. The most rest-favorable profile of the range — consistent with its slow register (Schumann) and with the meditation study, where it accompanied increased calm.

**Q-Alpha.** Deep and stable, clean recovery; slightly higher movement. A good second choice for the night.

**Q-Omega.** Collapsed depth, raised HR, maximal agitation, a more dream-like profile. Unfavorable for pure sleep — and logically so, since it is the circuit of the day, of wakefulness and performance.

## 5. Positioning matrix

Put together, these profiles segment the range not by “better / worse,” but by moment of use:

| Circuit | Observed profile | Suggested use | Avoid for |
|---|---|---|---|
| **Q-Theta** | Deep, calm, low movement, moderate HR | Sleep / recovery — best night candidate | — |
| Q-Alpha | Deep stable, clean recovery | Sleep / recovery (2nd choice) | — |
| Q-Omega | Phasic delta, HR ↑, agitated, dream-like | Day / wakefulness / exploration | Pure sleep / recovery |

**Strategic reading.** The dichotomy is an asset, not a flaw: rest (Q-Theta, Q-Alpha) on one side, wakefulness (Q-Omega) on the other — the right circuit at the right moment, rather than one circuit meant to do everything.

## 6. Interpretation — hypotheses (unproven)

**HYPOTHESIS** These readings are R&D hypotheses, not conclusions. One night per circuit, one subject, proxies: leads to confirm.

**Rest / wake segmentation.** The clear separation between Q-Theta/Q-Alpha (rest) and Q-Omega (wake) could reflect distinct frequency registers acting on the nervous system at different moments — but it could also stem, in part, from the unequal night conditions (time, duration).

**Q-Theta and sleep.** The deep / calm profile of Q-Theta is consistent across two independent studies (sleep and meditation), which strengthens the lead — without proving it.

**Imperfect baseline.** The subject wears Q-Omega by day; a residual effect on the “no-circuit” night is not excluded, which may compress the real contrast.

## 7. Limitations

- n = 1 per condition, only one night per circuit: impossible to separate the circuit’s effect from night-to-night variability.
- Unequal durations and bedtimes (short usable nights; variable bedtime): a real confound, attenuated by using ratios but not eliminated.
- EEG/cardiac proxies, no polysomnography sleep stages nor true HRV: indirect interpretation.
- Imperfect baseline: the subject wears Q-Omega by day — possible residual effects on the no-circuit night.
- Limited headband battery: mainly the early night is captured, not the full night.
- No blinding and conflict of interest (the subject is the inventor).

## 8. The protocol that would settle it

To turn these trends into proof:

- Repeat: ≥ 3 nights per condition, randomized order, washout.
- Standardize: same bedtime (± 15 min), target duration, identical EMF hygiene, controlled caffeine/alcohol.
- Blind + sham: a sham circuit placed by a third party.
- Hardware: a longer-battery headband (full night) + an inter-beat-interval sensor for true HRV.
- Pre-registered criteria: Delta/Beta, alpha intrusion, nocturnal HR, HRV; priority target = Q-Theta alone vs sham.
- Check electrode contact before falling asleep (otherwise data is lost).

## 9. Conclusion

On these EEG-measured nights, the commercialized range sorts itself: Q-Theta shows the deepest and calmest sleep profile, Q-Alpha follows closely, and Q-Omega — a daytime circuit — shows a more activating profile, unfavorable for pure sleep. The lesson is not “one circuit wins,” but “the right circuit at the right moment”: rest vs wakefulness. A coherent trend, reinforced by convergence with the meditation study — but established on one subject, one night per circuit, proxies and unequal

durations. It is a strong R&D lead, not proof: it calls for a repeated, randomized, blinded protocol with true HRV. Framing: exploratory trends, to be confirmed, with no medical claim.

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*Source: Muse EEG + Mind Monitor (early night), sleep proxies recomputed second by second from the raw CSV. Single subject, one night per circuit, unequal durations, no polysomnography. Conflict of interest declared. Unaudited internal data. Not a medical claim.*