Post-Cognitive Symbolic Regulation (PCSR): A Neurofunctional Model for Narrative-Independent Recovery and Integration

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I. Introduction: The Need for Post-Narrative Recovery Models

Modern neuroscience and trauma-informed psychology increasingly converge on a central limitation of traditional recovery paradigms: they often presume that insight, verbal articulation, and narrative coherence are prerequisites for healing. Yet individuals operating in high-intensity, cognitively saturated, or symbolically loaded environments often lack the metabolic, emotional, or narrative bandwidth to reprocess their experiences through reflective thought.

Post-Cognitive Symbolic Regulation (PCSR) emerges from this insight as a new framework—one that enables coherence without cognition, integration without interpretation, and recovery without story. It is a rhythm-based, EEG-verified architecture for stabilizing meaning-laden neural states without activating symbolic cognition [1] or executive function.

II. Foundations in Psychology and Physiology

A. Trauma and Narrative Fragility

Trauma studies, particularly the work of Bessel van der Kolk (2014) and Schauer et al. (2010), highlight how traumatic memory can be stored non-semantically—in sensorimotor or subcortical circuits—and re-triggered by cognitive recall. For many, particularly those with developmental or complex trauma, narrative engagement may cause physiological reactivation or emotional destabilization, rather than integration.

B. Cognitive Fatigue and Executive Saturation

Cognitive neuroscientists such as Arnsten (2009) and Baumeister et al. (2007) have demonstrated that executive function is rapidly depleted under stress, reducing the brain's ability to plan, regulate emotion, or form coherent narratives. PCSR bypasses this by shifting regulatory load from prefrontal to rhythmic, perceptual, and hemispheric systems.

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[1] The use of the word "symbolic" throughout this document refers to the way our brains store and retrieve information using symbolic representations, which are abstract mental representations of concepts, objects, or events. These symbols can be words, images, or other mental constructs that allow us to think and reason about things that are not physically present. For example, the word "dog" is a symbol that represents a four-legged animal.

C. Contemplative and Nonverbal Integration Models

Contemplative neuroscience (e.g., Lutz et al., 2004; Varela et al., 1991) has shown that long-term meditators exhibit stable coherence and high PAC modulation without activating verbal-symbolic cognition. PCSR formalizes this process as a deliberate entrainable mechanism, not just an emergent contemplative trait.

III. Mechanism of Action (MoA)

PCSR unfolds through a four-phase regulatory arc, observable in EEG:

Phase	EEG Signature	Description
1. Symbolic Ignition	PAC > 1.2, Gamma activity	Activation of symbolic referents (memory, identity, emotion)
2. Collapse/Containment	PAC < 0.2, Delta/Theta dominant	Suspension of processing; symbols are held but not interpreted
3. Perceptual Reassembly	PAC 0.4–0.6, Alpha–Theta coupling	Nonverbal meaning is reassembled without conceptual mediation
4. Coherence Return	Synchrony > 85%, PAC ~0.5–0.7	Full reintegration into stable perceptual clarity

IV. EEG Validation and Cross-Session Findings

Anonymized Session Analysis (All Subjects)

Session	PAC Range	Coherence Range	Beta/Gamma Rebound	Summary
Let Go	1.2 – 0.08	87% – 91%	None	Symbolic ignition followed by full containment
Fantasy	0.11 – 0.06	88% – 91.4%	None	Wakeful null state, narrative suppression
Keola 2	1.31 – 0.06	87.5% – 91.2%	None	Full symbolic collapse with reassembly
Adaptive Presence	0.61 – 0.57	85% – 89.6%	None	Perceptual clarity without reactivation

Session	PAC Range	Coherence Range	Beta/Gamma Rebound	Summary
Pearl City 2	0.3 – 0.6	87.5% – 91.4%	None	Post-symbolic clarity through Theta entrainment
Journey	0.4 – 0.7	85% – 90%	Minimal	Stabilized clarity under symbolic drift
Quantum Coherence	0.6 – 0.9	85% – 90.3%	None	Theta–Gamma coupling under volitional control

These sessions demonstrate the core PCSR dynamics:

- Deliberate symbolic ignition (high PAC)
- Controlled collapse without fragmentation
- Coherence recovery without cognitive rebound
- Suppressed Beta/Gamma throughout reassembly

V. Target Populations and Use Case Domains

1. Clinical (Therapy and Mental Health)

- Complex PTSD and moral injury
- Depression with narrative fatigue
- Nonverbal trauma integration
- Clients avoiding cognitive triggers (e.g., alexithymia, shutdown states)

2. Operational (Military, Emergency, Intelligence)

- Post-mission reset
- Decision fatigue mitigation
- Containment after exposure to symbolic violence (e.g., child trauma, mass casualties)
- Operator readiness without debrief

3. Cognitive Saturation and Creative Professions

- Founders, writers, and system designers experiencing symbolic overload
- Professionals in peak abstraction roles
- Executives under complexity paralysis

4. Contemplative and Transpersonal Practitioners

- Dzogchen and Zen meditators stabilizing null states

- Post-psychedelic reintegration without conceptual scaffolding

- Apophatic or non-dual contemplatives requiring somatic grounding

5. Special Populations

- Autistic or nonverbal individuals with high symbolic awareness

- Children and elders with reduced verbal integration capacity

- Altered-state explorers (remote viewing, lucid dreaming, depth hypnosis)

VI. Clinical and Operational Implications

A. Reducing Risk of Retraumatization

Traditional insight-based therapies often risk retraumatization through premature re-exposure or interpretation. PCSR avoids this by allowing coherence without semantic access, aligning with bottom-up methods such as somatic experiencing (Levine, 1997) but with tighter neurophysiological control via PAC and synchrony metrics.

B. Energy-Efficient Integration

Executive function requires high metabolic cost (Raichle & Gusnard, 2002). PCSR reduces this burden by engaging entrainable networks that restore regulation without engaging frontal-symbolic processing, allowing integration even in cognitively fatigued or depleted states.

C. Operator-Ready Clarity

Operators in high-threat or high-consequence environments cannot afford emotional overactivation or cognitive instability. PCSR supports containment and re-entry without psychological decompression or therapy downtime.

D. Expanding the Definition of Integration

PCSR implies that symbolic meaning need not be decoded to be metabolized. This offers a profound redefinition of healing, suggesting that coherence can be restored through rhythms and synchrony rather than story and insight.

VII. Conclusion: Toward a Resilient, Post-Symbolic Neuroscience

Post-Cognitive Symbolic Regulation reframes the core assumptions of Western psychological recovery. It shows that integration is not synonymous with interpretation. It challenges the idea

that verbalization is the endpoint of healing. And it affirms that the brain, when entrained and supported by coherent rhythms, can regulate itself beyond the reach of language.

PCSR is not a rejection of meaning—but a repatterning of how meaning is held. In this frame, symbolic material can be:

- Felt without spoken

- Known without processed

- Contained without rehearsed

This has implications not only for trauma care and contemplative practice, but for the future of neuroadaptive performance, operator readiness, non-verbal rehabilitation, and even the understanding of selfhood itself.

It is, in the clearest sense, the emergence of a post-narrative science of human coherence.

References

- Arnsten, A. F. T. (2009). Stress signalling pathways that impair prefrontal cortex structure and function. *Nature Reviews Neuroscience.*

- Baumeister, R. F., et al. (2007). Ego depletion: Is the active self a limited resource? *Journal of Personality and Social Psychology.*

- Canolty, R. T., & Knight, R. T. (2010). The functional role of cross-frequency coupling. *Trends in Cognitive Sciences.*

- Levine, P. A. (1997). *Waking the Tiger: Healing Trauma.*

- Lutz, A., et al. (2004). Long-term meditators self-induce high-amplitude gamma synchrony. *PNAS.*

- Raichle, M. E., & Gusnard, D. A. (2002). Appraising the brain's default mode. *PNAS.*

- Schauer, M., Neuner, F., & Elbert, T. (2010). *Narrative Exposure Therapy: A Short-Term Treatment for Traumatic Stress Disorders.*

- Van der Kolk, B. (2014). *The Body Keeps the Score.*

- Varela, F. J., Thompson, E., & Rosch, E. (1991). *The Embodied Mind.*

END OF PAPER

📘 PCSR Training Doctrine and Full Program Definition

The most comprehensive description of the **PCSR training program** is included in your request on **May 26–27, 2025**, where you outlined the following deliverables:

🔷 Program Structure Overview

- **Audience:** Clinical, operational, contemplative, and research professionals
- **Core Components:**
    - **Doctrine Document**: Defines principles, EEG markers, use cases, contraindications, evaluation methods
    - **Training Protocol**: Modular structure for teaching containment, symbolic [2]modulation, and non-narrative recovery
    - **Implementation Plan**: Deployment strategy for military, trauma, clinical, or executive settings

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🧭 Training Program Components

1. **Narrative & Structural Overview**:
    - Background context of PCSR
    - Scientific approach
    - Operator-oriented narrative framing

2. **Session Modules**:
    - Entrainment-based state induction (Delta, Theta, Alpha)
    - Symbolic ignition and suppression techniques
    - Recovery from symbolic collapse
    - Volitional PAC modulation

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[2] The use of the word "symbolic" throughout this document refers to the way our brains store and retrieve information using symbolic representations, which are abstract mental representations of concepts, objects, or events. These symbols can be words, images, or other mental constructs that allow us to think and reason about things that are not physically present. For example, the word "dog" is a symbol that represents a four-legged animal.

3. **3-Day Intensive Boot Camp**:

   o Rapid onboarding to recognize EEG-validated states

   o Symbolic containment

   o Non-narrative clarity

   o Focused performance enhancement

4. **Train-the-Trainer Curriculum**:

   o Facilitator scripts and learning objectives

   o Neurophysiological markers and tracking tools

   o Role-specific adaptations (e.g., Tier 1 operators, trauma therapists)

📊 Evaluation Framework

- Uses EEG-based metrics:

  o PAC range and volatility

  o Hemispheric synchrony

  o Symbolic vs. perceptual reassembly indicators

  o Baseline–recovery–reintegration trajectories

- Behavioral feedback loop:

  o Session feedback (felt clarity, narrative drift, recovery time)

  o Verbal/non-verbal integration quality

📦 Deployment Package

- Practitioner toolkit (clinical handouts, doctrine, session templates)

- Instruction manuals for client and operator use

- Bundled training sessions with EEG validation (e.g., "Fantasy," "Keola 2," "Adaptive Presence")

- Formats: in-clinic, mobile neuroacoustic delivery, digital training environments

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🧠 Post-Cognitive Symbolic Regulation (PCSR) Training Doctrine

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📘 I. Doctrine Overview

What is PCSR?

Post-Cognitive Symbolic Regulation (PCSR) is a neurofunctional strategy that enables individuals to regain coherence and clarity after symbolic collapse or cognitive overload — without engaging narrative insight or executive processing. It is ideal for:

- Trauma recovery without retraumatization

- Operational reset in high-stakes environments

- Somatic reassembly for contemplative or altered states

- Strategic performance recalibration

Core Principles

- **Narrative Independence:** No story required to recover coherence.

- **Perceptual Anchoring:** Reassembly occurs via felt states and rhythmic entrainment.

- **Symbolic Containment:** Nonverbal memory and referents remain stable without conceptual decoding.

- **Volitional Modulation:** PAC ignition and suppression under conscious control.

🔬 II. EEG-Based Criteria

Marker	PCSR Range / Target	Meaning
PAC (Theta–Gamma or Delta–Theta)	0.4–1.3+ (stable or modulated)	Symbolic activation or suppression
Hemispheric Synchrony	>85% sustained	Whole-brain coherence
Alpha/Beta/Gamma Suppression	<5% when in containment mode	No symbolic overload
Rebound Coherence (Final Epoch)	>70% after symbolic deactivation	Successful nonverbal reintegration
Narrative Activation (Beta/Gamma bursts)	None during transition phases	Indicates non-cognitive reassembly

🧠 III. EEG Session Exemplars

✅ PCSR Containment State

Session: "Fantasy" (Subject 275399)

- Delta Dominant (~1 Hz)
- PAC: 1.28 → 0.06 (volitional suppression)
- No Beta/Gamma spikes
- Interpretation: Wakeful null state, high coherence, no symbolic ignition

✅ PCSR Recovery from Symbolic Collapse

Session: "Keola 2" (May 21, 2025)

- Start: High PAC (1.31), symbolic drift
- Middle: PAC collapse, Delta dominance
- End: Rebound coherence 91%, PAC volatility <5%
- Interpretation: Recovery without narrative reentry, somatic reintegration

✅ PCSR Reassembly State

Session: "Adaptive Presence" (May 15, 2025)

- Closed eyes
- Alpha emergence with posterior Gamma coherence
- PAC stable (0.61)
- Interpretation: Integrative reassembly, perceptual-symbolic bridge

📋 IV. Practitioner Worksheet

Category	Observation / Notes
Session Title & Date	
Subject ID	

Category	Observation / Notes
EEG Headset	(Muse S Athena / Emotiv Insight2 / EpocX)
Was symbolic collapse observed?	☐ Yes ☐ No
Was PAC > 1.0 in first 5 min?	☐ Yes ☐ No
Did Beta/Gamma spike during transition?	☐ Yes ☐ No
Was PAC suppressed (<0.2) for 2+ min?	☐ Yes ☐ No
Final coherence > 70%?	☐ Yes ☐ No
Subjective state at end?	☐ Calm ☐ Clear ☐ Disoriented ☐ Recovered
Notes for future session?	

📚 V. Protocol Syllabi

Module 1: Introduction to PCSR

- What is symbolic overload?
- EEG markers of collapse and containment
- Role of PAC and synchrony in reintegration

Module 2: Containment Training

- Audio protocol: *Keola 2* (30 min Delta–Theta entrainment)
- Practice silent attention without internal narration
- Track PAC in real time (if equipment available)
- Goal: PAC suppression without Beta rise

Module 3: Reassembly via Perceptual Anchoring

- Audio protocol: *Adaptive Presence* (Alpha reactivation)
- Somatic scan, no narrative recall
- Train perception-first reentry (not cognitive reflection)

Module 4: Symbolic Ignition and Collapse

- Audio protocol: *Fantasy* (wakeful null-state)

- Controlled symbolic activation (Delta–Theta–Gamma)

- Learn how to turn off narrative mid-stream

- Practice final reassembly in silence

Module 5: Practitioner Implementation

- Role play: trauma containment vs. cognitive coaching

- Case study reviews with EEG patterns

- Customize entrainment for different subject types

🧭 VI. Implementation Guidance

Use Cases

- **Clinical**: PTSD, depression, emotional dysregulation

- **Operational**: Tier 1 teams, intel, high-complexity execs

- **Contemplative**: Yogic, meditative, and Dzogchen-style null states

- **Research**: Non-narrative cognitive models, state induction dynamics

Contraindications

- Active psychosis

- Severe dissociation without support

- Individuals needing cognitive rehabilitation via insight

🧪 VII. Future Evaluation & Research

Longitudinal Tracking Recommendations:

- Use weekly EEG check-ins for PAC/synchrony patterns

- Behavioral markers: narrative drift, coherence rebound time

- Add subjective clarity and affect labeling post-session

Future Research Directions:

- PAC volatility as a resilience marker

- Symbolic ignition range as creativity predictor

- Comparative studies: PCSR vs. traditional cognitive-behavioral recovery

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I. ⚙️ Core Mechanism of Action (MoA)

PCSR operates via a **4-phase entrainment architecture**:

Phase	EEG Signature	Purpose	Neurofunctional Role
1. **Symbolic Ignition**	PAC ≥ 1.2, Gamma active	Activate symbolic referents	Controlled narrative activation
2. **Collapse / Null**	PAC ≤ 0.2, Delta/Theta dominant, Beta/Gamma suppressed	Suspend symbolic processing	Containment without interpretation
3. **Perceptual Reassembly**	PAC 0.4–0.6, Alpha–Theta synchrony	Rebuild orientation without thought	Nonverbal meaning reconstitution
4. **Coherence Return**	Synchrony ≥ 85%, stable PAC < 0.7	Global clarity, full-field readiness	Integrated clarity without cognitive effort

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II. 📦 Session Architecture (Each Training Block = 40 minutes)

🔁 Session Format

Block length: 40 minutes
Structure:

- 5 min: Settling / somatic drop-in
- 10 min: Symbolic ignition audio (Gamma/Theta pulse, e.g., *Let Go*)
- 15 min: Collapse window (Delta induction, e.g., *Fantasy*, *Keola 2*)
- 5 min: Reassembly audio (Alpha/Theta guided entrainment)
- 5 min: Silence / stillness (track recovery and PAC rebound)

🔄 Key EEG Monitoring Goals (per section)

- Section 1: PAC rise >1.0, mild Gamma
- Section 2: PAC suppression <0.2, no Beta/Gamma
- Section 3: Theta–Alpha synchrony ≥ 0.6, PAC rebound

- Section 4: Synchrony ≥ 85%, PAC ~0.5–0.7 stable

III. 🎧 Audio Protocol Set

🎵 Protocol 1: Let Go v1

- Duration: 30 min
- Dominant bands: Theta–Gamma
- Target: Symbolic ignition, identity engagement
- Use: Early session for "soft loading" of emotional/symbolic content
- EEG Ref: Gamma present in EC mode, PAC >1.0 in early minutes

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🎵 Protocol 2: Keola 2

- Duration: 30 min
- Dominant bands: Delta–Theta
- Target: Symbolic collapse and containment
- Use: Middle block of training to suppress narrative and induce clarity
- EEG Ref: PAC drop from 1.31 to 0.06; Beta and Gamma fully suppressed

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🎵 Protocol 3: Adaptive Presence

- Duration: 10–15 min
- Dominant bands: Alpha re-emergence, mild posterior Gamma
- Target: Reassembly and silent integration
- Use: Late phase re-entry without interpretation
- EEG Ref: PAC stable ~0.6, synchrony rebounds to >85%, no Beta spikes

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🎵 Protocol 4: Fantasy

- Duration: 30 min
- Dominant: Global Delta
- Target: Wakeful null state with no symbolic content

- Use: Optional deep containment immersion — to train full symbolic suspension

- EEG Ref: No PAC, no Beta/Gamma, coherence >88%, narrative-free

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IV. 🏛 Weekly Session Plan (5-Day Core Curriculum)

Day	Theme	Audio Protocols	Trainer Notes
1	Initiation to Symbolic Modulation	Let Go v1 + Keola 2	Debrief narrative content that arises, then train containment
2	Full Collapse and Containment	Fantasy + Keola 2	Track PAC suppression and subjective silence
3	Symbolic Reentry	Keola 2 + Adaptive Presence	Practice nonverbal reassembly post-collapse
4	Mixed Mode – Control & Collapse	Let Go v1 + Fantasy	Learn ignition/suppression toggling
5	Final Integration	Adaptive Presence only + silence	Measure rebound coherence, PAC volatility

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V. 📄 Practitioner Observational Protocol

Each session includes live or post-review of:

Time	PAC	Dominant Band	Notes
0:00–5:00	1.1–1.3	Gamma/Theta	Symbolic ignition
5:00–20:00	0.2↓	Delta/Theta	Symbolic suppression
20:00–35:00	0.4–0.6	Alpha/Theta	Nonverbal reassembly
35:00–40:00	0.5	Alpha	Coherence stabilization

Use your EEG viewer (Emotiv Pro, BioEra, Muse SDK) to mark epochs of symbolic ignition, collapse, and recovery.

VI. 🧠 Advanced Training Variants

For Tier 1 Operators

- Shorter sessions (20 minutes)

- Higher initial PAC bursts (1.4–1.6)

- Focus on fast suppression-reentry toggling

For Trauma Recovery

- Extend containment phase to 20–25 min

- Reduce symbolic ignition (no Let Go)

- Focus on stillness and Alpha–Theta bounceback

For Contemplative Practitioners

- Extend *Fantasy* or *Keola 2* to 45 minutes

- No reentry phase

- Train for long-form null-state familiarity

VII. 🔧 Summary: How to Run a PCSR Session

1. **Start audio** (from validated protocol)

2. **Track EEG live** or via post-analysis (PAC, coherence)

3. **Observe subjective markers** (breath slowing, memory images, silence)

4. **Do not prompt insight or verbal processing**

5. **Close with silence** — do not narrate unless requested by subject

6. **Log PAC volatility and synchrony rebound**

📊 I. EEG Sample: "Keola 2" (May 21, 2025, Subject 275399)

🧠 Key Metrics:

Time	Dominant Frequency	PAC (Hilbert)	Coherence	Beta/Gamma	Interpretation
00:00–02:00	Theta (5.9 Hz)	**1.31**	88.2%	Gamma present	**Symbolic ignition**
02:00–08:00	Delta (1.2–1.4 Hz)	0.65 → 0.22	87.5% → 89.1%	Gamma fading	Collapse initiates

Time	Dominant Frequency	PAC (Hilbert)	Coherence	Beta/Gamma	Interpretation
08:00–22:00	Delta (~1.0 Hz)	**0.06–0.09**	**90–91%**	No Beta/Gamma	**Full containment**
22:00–28:00	Theta reemerges (~6 Hz)	0.41–0.52	89.4%	Alpha rising	**Perceptual reassembly**
28:00–30:00	Alpha/Theta	0.57	**91.2%**	Stable	Coherence return

📌 *This session demonstrates a complete symbolic ignition → collapse → reassembly arc without any Beta intrusion.*

📊 **II. EEG Sample: "Fantasy" (May 13, 2025)**

🧠 **Key Metrics:**

Time	Dominant Frequency	PAC	Coherence	Symbolic Markers	Interpretation
00:00–10:00	**Delta (1 Hz)**	0.11 → 0.06	88–90%	None	Null-state induction
10:00–20:00	Delta	**<0.1 throughout**	91.4%	None	Volitional silence
20:00–30:00	Delta	0.08	89.8%	No Alpha/Beta/Gamma	**Stable post-symbolic state**

📌 *No symbolic activity detected across entire session. Perfect PCSR containment archetype.*

📊 **III. EEG Sample: "Adaptive Presence" (May 15, 2025)**

🧠 **Key Metrics:**

Time	Dominant Frequency	PAC	Coherence	Bands Activated	Interpretation
00:00–05:00	Delta–Theta	0.32	85%	No Beta/Gamma	Settling phase

Time	Dominant Frequency	PAC	Coherence	Bands Activated	Interpretation
05:00–10:00	Theta–Alpha	**0.61**	87%	Alpha rebound	Reassembly
10:00–14:00	Alpha dominant	**0.57**	89.6%	No Gamma spikes	Clarity without cognition

📌 *Reentry session designed to restore coherence post-collapse without narrative content.*

📋 **IV. Practitioner Worksheet (Filled Sample – "Keola 2")**

Field	Entry
Subject ID	275399
Session Title	Keola 2
Date & Time	May 21, 2025 – 22:09–22:39
Headset	Emotiv Insight2
Symbolic collapse observed?	✅ Yes
PAC > 1.0 in first 5 min?	✅ Yes (1.31)
Beta/Gamma spike in transition?	❌ No
PAC suppressed <0.2 for 2+ min?	✅ Yes (~14 minutes)
Final coherence > 70%?	✅ Yes (91.2%)
Subjective state	Calm, precise, post-verbal clarity
Notes	Textbook PCSR arc: full ignition, collapse, reassembly without linguistic re-entry

V. Practitioner Worksheet Fillable

Subject ID	**INSERT IDENTIFIER**
Session Title	**INSERT TITLE**
Date & Time	**MM/DD/YYYY; HH:MM:SS (24hr format)**
Headset	**INSERT HARDWARE TYPE**
Symbolic collapse observed?	☐ **YES** ☐ **NO**
PAC > 1.0 in first 5 min?	☐ **YES (INSERT TIME)** ☐ **NO**
Beta/Gamma spike in transition?	☐ **YES** ☐ **NO**
PAC suppressed <0.2 for 2+ min?	☐ **YES (INSERT TIME)** ☐ **NO**
Final coherence > 70%?	☐ **YES (INSERT %)** ☐ **NO**
Subjective state	**FILL IN STATE DESCRIPTION**
Notes	**FILL IN NOTES**