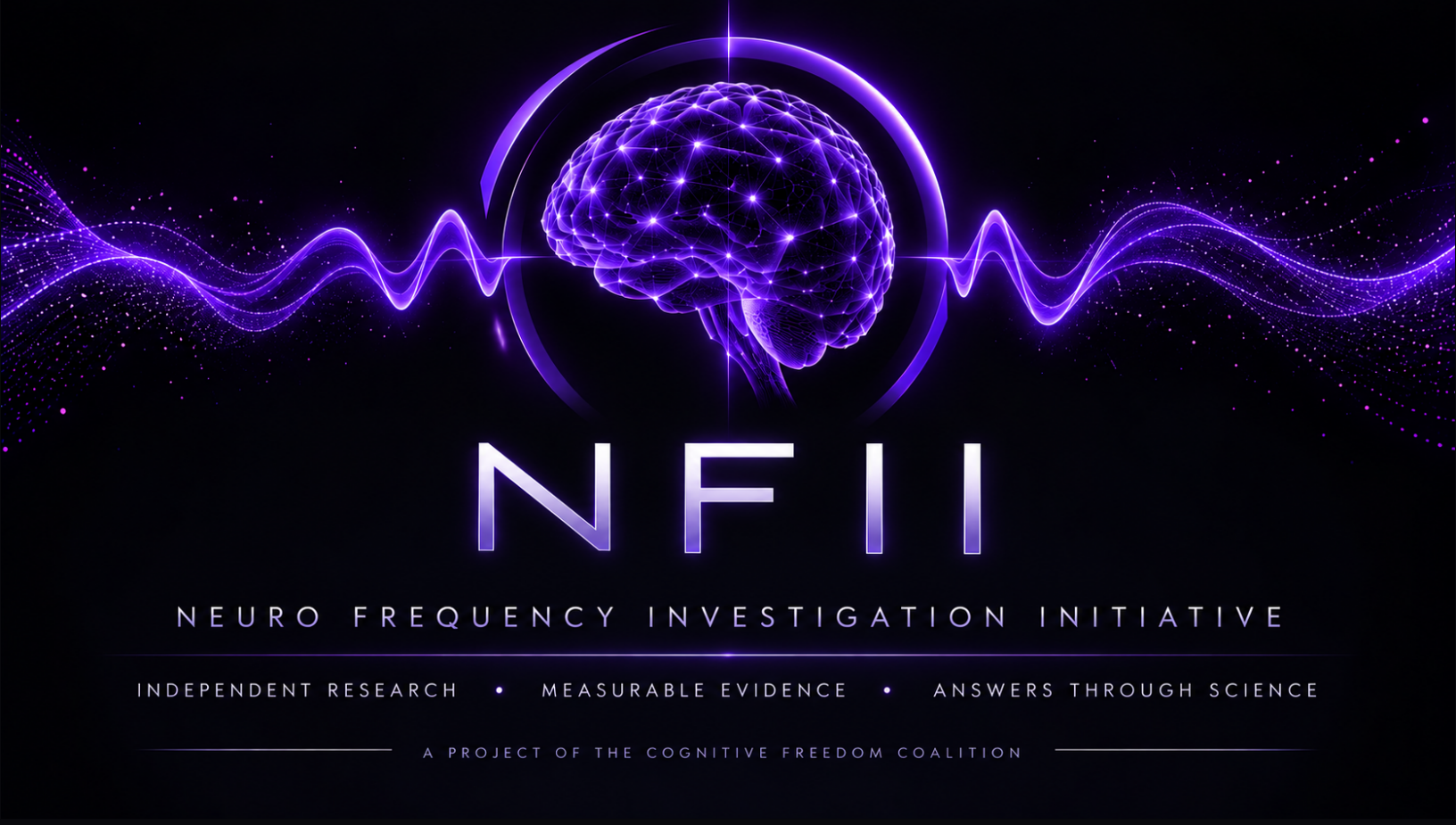


RESEARCH FRAMEWORK / TRACK A

Research Pathway A

Signals and the Electromagnetic Environment

The Research Question

Can an external physical signal or exposure associated with participant-reported events be objectively detected, measured, characterized, differentiated from ordinary environmental sources, and independently reproduced?

NFII invites investigators to lead independent scientific investigations in collaboration with the initiative. People who report unusual experiences deserve careful listening, thoughtful documentation, and research that can distinguish competing explanations.

Measure the environment. Investigate ordinary sources. Compare events and controls. Reproduce and independently replicate.

Start with the participant guide or investigator brief. The ZIP includes editable templates and a clearly labeled synthetic submission.

START HERE

For Participants

What This Pathway Investigates

Track A asks what can be measured in the environment during reported experiences. A report supplies context and a question to investigate. It does not establish an exposure, a mechanism, a responsible party, or enrollment in an experiment.

You do not need to prove an explanation before describing what you experienced. Record the observation in your own words and distinguish it from your interpretation. Positive, negative, contradictory, and inconclusive results all have a place in the record.

How You Can Prepare

- If you choose to keep a log, record start and end times, your time zone, what happened, your activity, and relevant device use. Mark estimated times as estimated.
- Use a study-assigned code when communicating with researchers. Keep your name, address, and contact information separate from scientific files.
- Keep original notes and files. Record later corrections as corrections rather than silently replacing an earlier entry.
- Use the templates as optional aids. You can describe an event in ordinary language without completing every technical field.

Participation and Consent

Downloading this package does not enroll you in a study or grant anyone permission to share your information. NFII requires explicit consent before providing participant information to an investigator or institution. The investigator determines eligibility, enrollment, consent procedures, and any ethics review requirements.

An actual study must tell you what it involves, what information is collected, who can access it, what the risks are, and how withdrawal works. No personal information is needed to open these starter resources. Technical measurement fields are for investigators. The framework does not ask participants to generate RF exposure, purchase equipment, build shielding, or perform self-experiments.

Your First Step

Read this guide, then use the event log only if it is useful to you. Discuss study participation through a verified investigator or NFII contact. Visit cognitivefreedomcoalition.org/nfii for initiative information. The download itself contains no active enrollment or submission service.

A FIVE-MINUTE START

Investigator Brief

The Opportunity

NFII connects research questions, community observations, consenting potential participants, and collaboration infrastructure. Its purpose is to help independent investigators determine what, if anything, can be objectively measured, reproduced, and verified in relation to reported experiences attributed to remote or frequency-based effects.

The first useful study need not explain every report. A bounded environmental survey, a time-synchronized monitoring study, a control comparison, a carefully characterized shielding comparison, or an assessment of a technical lead can each narrow the uncertainty.

A Flexible Research Sequence

- Measure the relevant environment and establish the instrument's coverage and limitations.
- Preserve community and technical leads as attributed hypotheses, then translate them into measurable predictions.
- Characterize candidate signals and investigate ordinary sources and instrument artifacts.
- Compare event and non-event periods, participants and controls, or characterized conditions.
- Repeat the observation with independent equipment and seek replication by another laboratory.

Independent Scientific Leadership

Investigators retain responsibility for hypotheses, design, instrumentation, eligibility, enrollment, ethics review, analysis, interpretation, conclusions, and publication. NFII offers questions and infrastructure; collaboration does not require agreement with an attributed explanation.

A pilot should establish whether the selected instruments and time references can answer the bounded question. Predefine the comparison, exclusions, uncertainty treatment, and criteria for an interpretable result. Report null and inconclusive outcomes with the same care as candidate effects.

A Useful Initial Contribution

Identify one question that fits your expertise. State what could be measured, what controls would distinguish competing explanations, what evidence would count against the hypothesis, and what practical constraints determine feasibility. An annotated critique or source recommendation can be useful before a study exists.

01 / THE FRAMEWORK

Purpose, Scope, and Questions

The NFII Mission

The Neuro Frequency Investigation Initiative is a program of the Cognitive Freedom Coalition. It encourages independent scientific investigation of experiences attributed to RNM, V2K, directed-energy systems, frequency-based neural effects, cognitive interference, or remote effects on perception or physiology. These are reported descriptions and hypotheses to examine, not conclusions established by the initiative.

Rigorous investigation serves human dignity, informed consent, mental privacy, and Cognitive Freedom by improving the quality of evidence and the accountability of interpretation. The mission determines the questions pursued. Evidence determines the claims made.

Track A and Track B

Track A addresses external signals and the electromagnetic environment. Track B addresses measurable neural and physiological responses and is developed separately. A combined study may compare independently acquired environmental, participant-event, and biological records after establishing their time alignment and respective measurement limits.

An environmental signal alone does not establish a biological effect. A biological change alone does not identify an external source. A shared timestamp is a starting point for a controlled comparison, not proof of a causal relationship.

Questions That Can Be Bounded

- What portion of the environment was observed, with what detection limits and uncertainty?
- Does a predefined feature recur during reported events more often than in matched comparison periods?
- Does the feature persist after local electronics and receiver artifacts are evaluated?
- Does a properly characterized condition change the measured feature in the predicted way?
- Can independent equipment or another laboratory reproduce the observation?

A Research Planning Framework

This release supplies a starting architecture and reusable resources. It is not a validated clinical protocol, a completed literature review, or a finding about an individual. Investigators may revise or replace every proposed study approach. The evidence matrix is a starter library, not the planned comprehensive 50-100-entry research review.

02 / QUESTIONS WITHOUT PRESET ANSWERS

Evidence and Technical Leads

Preserve the Observation and Its Source

Retain what a community member observed, when it occurred, and where the account came from. Record the proposed explanation separately. Useful timing patterns, environmental observations, shielding accounts, or technical suggestions can motivate a test even when the mechanism is unresolved.

Classify important material by source and evidence type: standards, peer-reviewed research, government research or assessment, documented technology, patent, community report, advocate theory, historical lead, hypothesis, experimental result, or unresolved observation. Source class describes provenance; it does not substitute for critical appraisal.

Translate Leads into Predictions

- Record the claim verbatim only where permitted, or use an accurate attributed paraphrase with a source URL and date.
- State a prediction about a measurable feature: frequency coverage, bandwidth, modulation, pulse structure, time pattern, or condition dependence.
- List ordinary explanations and instrument artifacts that could produce the same feature.
- Define a feasible test, comparison, and falsifying outcome before examining the results.

Keep Different Propositions Separate

A patent describes claimed or proposed subject matter and does not establish that a device worked. A program objective is different from a demonstrated result. A physical effect under specified conditions does not establish that those conditions occurred in a reported case.

Microwave auditory research, proposed speech-transmission architectures, and community V2K accounts require separate evidence review. Documented radar sensing, beam steering, or thermal RF technologies cannot by themselves establish remote neural-content decoding or targeting. AHI material belongs in a dated, source-specific review that includes contrary findings and revisions.

The Leads Register

The supplied leads-register template preserves an attributed lead, its technical interpretation, predicted signature, competing explanation, proposed test, and review status. Unchecked claims should remain marked unverified. No community frequency range is designated a confirmed operating band in this package.

03 / KNOW WHAT THE INSTRUMENT CAN SEE

Measurement Planning

Choose Coverage for the Question

Investigators may select conventional RF, microwave, millimeter-wave, or justified lower-frequency electric and magnetic field measurements. Explain why the chosen bands, sensors, and acquisition settings can test the question. Record unobserved frequencies and periods rather than implying complete coverage.

A wide sweep trades time and resolution against coverage. A narrow continuous capture answers a different question. Intermittent signals can be missed between sweeps, outside the acquisition bandwidth, or below the detection threshold. An absence of detection is interpretable only within the instrument's documented limits.

Record the Acquisition Context

- Instrument model, configuration, sample rate, center frequency, span, resolution or analysis bandwidth, detector, gain, and acquisition duration.
- Antenna or probe, orientation, polarization, cable losses, antenna factor where applicable, and placement relative to the participant and environment.
- Calibration records, traceability, before/after checks, uncertainty, noise floor, detection threshold, and saturation or overload checks.
- UTC time reference, synchronization method, clock offset, drift, gaps, location code, and environmental conditions.

Use a Defensible Measurement Model

Received power, field strength, and power density are distinct quantities. Conversions require the relevant antenna/probe response, geometry, field assumptions, and uncertainty. Do not infer an exposure or dose from uncalibrated IQ amplitude or a single wearable meter.

Near-field behavior, reflections, body shadowing, orientation, cross-talk, motion, and strong nearby emitters can affect interpretation. Combine suitable sensors and checks where the question warrants it. No equipment brand is mandated.

Measurement Resources

IEEE C95.3-2021 describes professional measurement and computation practices across 0 Hz to 300 GHz [1]. NIST identifies calibration, sensor performance, noise, and uncertainty as spectrum-sensing concerns [2, 3]. Consult applicable low-frequency, RF-assessment, and shielding standards, including the IEC 61786, IEC 62232, and IEEE 299 families, and verify the current edition and applicability before adopting a method. Full standard texts are not redistributed here.

04 / BUILD COMPARISONS THAT CAN ANSWER THE QUESTION

Events, Controls, and Shielding

Synchronize Separate Records

Keep participant-event logging distinct from instrument acquisition. Use UTC when feasible and retain any original local time and time-zone information. Record whether a timestamp was exact, estimated, retrospective, or generated by a device. Quantify synchronization offset and uncertainty before evaluating a temporal association.

Select event windows and comparison periods in advance. Account for clock drift, missing samples, delayed reporting, and differing acquisition durations. Avoid choosing a time window after viewing a candidate signal and presenting it as a preplanned test.

A Control Can Take Several Forms

- Matched event and non-event periods with comparable activity and device use.
- Baseline and repeat measurements at the same location.
- Matched locations, participants, or instruments when appropriate.
- Randomized or blinded conditions and sham comparisons where feasible.
- Independent laboratory replication using the same documented question and analysis plan.

Characterize Shielding

Shielding is frequency-dependent and configuration-dependent. Document the room or enclosure, tested attenuation, antennas/probes, penetrations, background inside and outside, and frequencies where performance is unknown. Do not describe a room as blocking all frequencies.

An ordinary-shielded-ordinary sequence is one possible design. Condition order, duration, blinding, residual signals, activity, and other environmental changes need consideration. The investigator determines whether the comparison is feasible and scientifically useful. A reported change in an uncharacterized enclosure cannot isolate an RF mechanism.

Learn from Contrary Results

A review should include controlled provocation and exposure studies with null or inconsistent results. Use their design strengths and limitations to refine the question and controls. Positive, negative, and contradictory findings should be evaluated under the same criteria.

05 / INVESTIGATE ORDINARY EXPLANATIONS

Signal Characterization and Attribution

Describe a Candidate Precisely

Record frequency, bandwidth, received level or field quantity, temporal behavior, modulation, pulse width and interval, persistence, signal-to-noise ratio, and direction where the instrument supports those measurements. Preserve the acquisition settings and the raw data behind each derived figure.

Elevated RF power alone is not a definition of an anomaly. A useful candidate has a specific signature and a comparison that could distinguish it from expected background or an artifact. State what was actually measured and which descriptors remain inferred or unavailable.

An Attribution Sequence

- Confirm the detection and check noise, overload, aliases, images, and internal instrument responses.
- Inventory local electronics and repeat measurements with controlled changes where appropriate.
- Check expected services such as broadcast, cellular, Wi-Fi, Bluetooth, aviation, amateur radio, public safety, radar, satellite, and industrial devices.
- Consult relevant licensing and allocation records, then record the query, date, geography, and limitations.
- Use suitable direction-finding and repeat/control measurements when feasible.
- Retain an unresolved label when attribution is incomplete, without assigning an operator or intent.

Allocation Is Context

The NTIA allocation chart and Spectrum.gov resources help identify service context [5]. An allocation indicates allowed service categories, not the identity of the emitter detected in a particular recording. FCC ULS searches may help with licensed services but do not inventory every unlicensed, mobile, federal, or intermittent source. A failed database search cannot establish that a signal is covert.

Keep an Attribution Record

Use the source-attribution template to document each candidate explanation, supporting observation, exclusion test, result, unresolved issue, and next check. State the difference between a service-level hypothesis, physical localization, equipment identification, and attribution to a responsible party.

06 / KEEP THE SOURCE AND THE CONTEXT

Data Preservation and Submission

Preserve Original Bytes

Keep original instrument exports, raw RF/IQ recordings, waterfall or time-series data, notes, metadata, and calibration records. Preserve the acquisition-native format when possible. Save processed outputs separately with a method description and links to their input files.

The Workbench accepts native researcher files rather than requiring one rigid form. A snapshot is a timestamped contribution attached to an institution's timeline. Its file metadata is stored in the database and file contents are stored in R2. Public sharing must be deliberately authorized and privacy reviewed.

An Interoperable Package

- README: question, track, study context, file inventory, access/privacy instructions, and known limitations.
- Source/: original files, metadata, calibration context, and de-identified event logs.
- Derived/: analysis outputs, figures, methods, software versions, and input references.
- Manifest: file paths, sizes, checksums, source/derived classification, and package version.

SigMF Where Useful

SigMF pairs signal samples with JSON metadata. The example uses version 1.2.6, cf32_le data, matching .sigmf-data and .sigmf-meta filenames, UTC capture time, sample rate, and a data hash [4]. SigMF support is encouraged when it helps portability; researchers may retain their native format.

The example signal is digitally generated, uses arbitrary amplitude units, and lasts 8.192 milliseconds. It is a file-format demonstration. Its separate invented measurement CSV is not calibrated from those bytes and does not establish exposure or correlation. Sample labeling appears in the filenames, README, metadata description, annotation, and manifest.

Privacy and Review

Use study codes in scientific files. Keep the identity-to-code mapping in an investigator-controlled location with explicit access rules. A template is not a consent record. Review embedded document metadata, images, precise locations, and free text before sharing. Separate permission to participate from permission to disclose identity or publish a contribution.

07 / MAKE THE RESULT INTERPRETABLE

Analysis, Replication, and Reporting

Predefine the Comparison

State the outcome, comparison periods, exclusions, threshold, uncertainty model, and analysis method. Account for multiple comparisons, dependence between observations, missing data, reporting delays, and instrumentation limits. Exploratory findings should be labeled exploratory and evaluated in a separate confirmation dataset where possible.

Charts should identify units, sampling coverage, time base, transformations, and omitted observations. A visual coincidence is not an effect estimate. Candidate-event association, source attribution, and biological causation are separate analytical tasks.

A Stronger Candidate

- A repeatable feature with adequate signal-to-noise ratio and documented uncertainty.
- A predefined difference from relevant controls or comparison periods.
- Ordinary-source and instrument-artifact checks recorded with their limits.
- A plausible, testable physical model consistent with acquisition constraints.
- Reproduction on other equipment and independent replication.

Report Every Outcome

For a positive candidate, explain what changed and what remains unexplained. For a negative result, state which prediction was tested and the sensitivity of that test. For an inconclusive result, identify the missing measurement or design constraint that prevents interpretation.

The report should include the question, design, instrument context, calibration, controls, acquisition coverage, analysis methods, results, uncertainty, alternative explanations, limitations, and a reproducible file inventory. Avoid naming a mechanism or operator beyond the evidence.

AI and Monthly Synthesis

AI may assist file inventories, document summaries, metadata extraction, and derived-data organization when such processing is implemented and reviewed. It must not replace the source, invent missing values, or declare RNM, V2K, targeting, or causation established. Automated Workbench analysis is not connected in this release.

Monthly synthesis should reference eligible sources, permissions, a defined UTC date interval, contradictions, negative findings, limitations, and replication questions. Later snapshots must not be included in an earlier period merely because they appear on the same timeline.

08 / A BOUNDED NEXT STEP

Plan the First Study

Investigator Planning Checklist

- Choose one measurable question and record competing explanations.
- Define participant eligibility, informed consent, privacy, and the applicable ethics review route.
- Select instrumentation and acquisition coverage that can answer the question.
- Document calibration, detection limits, uncertainty, and time synchronization.
- Select controls and define the comparison before reviewing outcomes.
- Preserve original files and record every transformation.
- Plan ordinary-source and artifact checks.
- State what would support, weaken, or leave the hypothesis unresolved.
- Specify a feasible repeat or independent replication step.
- Agree on access, attribution, publication, and correction procedures.

Critical Review Questions

Could the instrument miss the predicted signal? Could a nearby device, moving emitter, receiver artifact, or clock error create the apparent association? Are participants and controls comparable? Were windows chosen after the fact? Is the uncertainty adequate for the claimed difference? What observation would count against the explanation? Can another investigator follow the files and repeat the analysis?

Use the Starter Resources

The package includes optional participant-event and measurement templates, a leads register, a source-attribution log, an evidence-matrix starter, a metadata example, a monthly-synthesis outline, and a fully synthetic submission. The templates are editable CSV or JSON resources. Researchers can use existing institutional formats instead.

The illustrative data contain no participant identity or scientific finding. Institutions shown in Workbench examples did not contribute the sample records. This release does not authorize participant outreach, RF exposure, enrollment, or publication of another person's information.

Collaboration

NFII invites investigators to lead independent scientific investigations in collaboration with the initiative. A technical critique, feasible study outline, source recommendation, or replication proposal can establish the next useful step. Scientific independence and honest reporting are conditions of the collaboration, including when findings challenge the initial hypothesis.

09 / THE STARTER LIBRARY

References and Resource Notes

Verified Primary Resources

[1] IEEE C95.3-2021. Recommended practice for measurements and computations of electric, magnetic, and electromagnetic fields with respect to human exposure, 0 Hz to 300 GHz. Publisher scope and active status checked October 7, 2026. https://standards.ieee.org/ieee/C95.3/5431/

[2] NIST. Spectrum Sensing and Monitoring R&D Topics. Resource on sensor characterization, calibration, monitoring, detection, and uncertainty. https://www.nist.gov/ctl/wireless-networks-division/spectrum-sensing-and-monitoring-rd-topics

[3] NIST. Spectrum Sensing and Noise. Resource on noise metrology and spectrum-sensing measurement performance. https://www.nist.gov/programs-projects/spectrum-sensing-and-noise

[4] SigMF. Specification version 1.2.6 and official metadata schema. https://sigmf.org/ and https://github.com/sigmf/SigMF/tree/v1.2.6

[5] NTIA. Spectrum.gov and United States Frequency Allocation Chart. Spectrum-management resources and allocation context. https://www.spectrum.gov/ and https://www.ntia.gov/page/united-states-frequency-allocation-chart

Scope of This Library

These references support the measurement, metadata, and attribution resources in this starter release. They do not establish a cause for participant-reported experiences. Publisher summaries and freely available resources were reviewed; complete standards are not copied into the archive.

The attached handoff's proposed review of patents, microwave auditory research, AHI assessments, defense technologies, sensor limitations, controlled provocation studies, and historical/community leads remains a separate literature-review workstream. The included evidence-matrix starter makes that distinction explicit and provides space for both supporting and contradictory evidence.

Version and Corrections

Version 1.0, October 7, 2026. Preserve the archive version and file manifest when citing or adapting it. Check resource URLs and current standard editions when planning a study. Direct corrections and collaboration inquiries through the initiative website at cognitivefreedomcoalition.org/nfii.