Before the United States Department of Health and Human Services

Office of the Assistant Secretary for Health

Request for Information: Electromagnetic Fields, Radiofrequency Radiation, and Wireless Radiation Exposure

Docket No. HHS-OASH-2026-0397

Comments of Waterford Consultants, LLC

These comments address questions 2, 5, 7, 8, 9, 10, 13, 15, 16, 17 and 18.

Executive summary

Waterford Consultants, LLC submits these comments from more than twenty years of professional practice in radiofrequency engineering, exposure assessment and regulatory compliance. We develop RFMaster and NIERTool, software used across the industry for predictive RF exposure assessments, and we build and operate continuous RF measurement equipment. That combination informs our view of what each method can and cannot establish.

We take no position on the adequacy of existing regulatory exposure limits or on the health effects of radiofrequency exposure. Where the Department reaches conclusions on health, those conclusions will rest on exposure data, and the availability and quality of that data is our subject. A standardized process for assessing emission and exposure levels is a prerequisite for the research that addresses those questions. Internal dose cannot be measured directly in a living person; it is computed from external field conditions, whether modeled or measured, so every estimate of it carries the uncertainty of the exposure inputs behind it.

The central issue is the absence of a standardized, longitudinal record of measured radiofrequency environmental conditions in the United States. Exposure is characterized three ways: predictive modeling, which estimates it from transmitter parameters and geometry and is the established basis for most compliance determinations; point in time measurement, which documents actual conditions during one observation window; and continuous measurement, which produces repeated measurements over extended periods, subject to the measuring system's own duty cycle and data completeness. These methods are complementary and are not interchangeable. Neither modeling nor isolated surveys can reconstruct how conditions at a place actually varied over time.

We respectfully recommend that the Department consider three actions.

1. **Recognize the longitudinal measurement gap as a priority research infrastructure issue.** Conditions that were never measured cannot be recovered later by modeling, and the value of such a record increases with its length, which is why deferring its creation has a cost.
2. **Encourage development of a vendor neutral national specification for continuous RF environmental monitoring,** through an accredited standards developer or an industry association operating its own consensus process. It should address measurement methods, frequency coverage, temporal resolution, calibration, stated uncertainty, detector characteristics, absolute measurement units with regulatory comparisons carried as derived values, data provenance, completeness and gaps, retention, interoperable access and dataset protection. ITU-T K.83 is a useful starting point rather than a finished answer.
3. **Evaluate a coordinated, independently administered monitoring framework** able to support federal research, independent analysis and appropriate public disclosure. It should preserve the distinction between environmental measurement and individual exposure, protect sensitive infrastructure information, and keep the resulting data accessible independently of any particular manufacturer or software platform.

While the individual technical components exist today, a consistent, interoperable and scientifically defensible national framework would still require standardization, systems engineering and implementation planning.

Question 2: the perspective these comments represent

Waterford Consultants LLC is a radiofrequency engineering and compliance firm. For more than twenty years our principal business has been the practical measurement of radiofrequency exposure in the field: site measurements, electromagnetic energy (EME) compliance reports, RF safety plans, signage and barrier programs, worker training, and compliance support at wireless infrastructure sites across the United States. Our clients include wireless carriers and infrastructure owners, and our work is also relied upon by municipalities, school districts and property owners who need to understand the RF environment in which they live and work.

We also develop and license the engineering software used to perform those determinations. Two of our platforms, **RFMaster** (formerly RoofMaster) and **NIERTool**, are used across the wireless industry to model RF exposure at antenna sites and to produce the compliance documentation that site owners, carriers and reviewing authorities rely on. They are in routine use by carriers, tower owners, municipalities and consulting engineers. That is relevant here for one reason: where we observe below that modeled compliance documentation cannot answer the Department's questions about change over time, we are describing the limits of our own products, not a competitor's.

Prediction and measurement tools answer different engineering questions. Predictive modeling is the right tool for prospective compliance assessment, worst case analysis and design, and it can evaluate conditions that have not yet been built. Continuous measurement is the only way to obtain an empirical record of what actually occurred at a place over time. Neither replaces the other, and a national evidence base needs both.

More recently we have also designed and built continuously operating RF exposure monitoring equipment, which we operate in the field. Our perspective therefore combines two of the categories in question 2: **service and infrastructure provider**, which is the larger and older part of our business, and **equipment or product manufacturer**, which for us covers both engineering software and measurement instruments. We make no claim in this response about the performance of our own instruments, and nothing below depends on them.

We take no position in this response on exposure limits, or on the health questions in the Department's request. We do not assert that any exposure level is safe or unsafe. Our comments address only how exposure is measured, recorded, retained and made available, which is the subject we can speak to from direct practice. Where the Department reaches conclusions on health, those conclusions will rest on exposure data, and the availability and quality of that data is our subject.

Question 5: existing standards, guidelines and regulatory frameworks

The instruments the Department should consider fall into three groups.

Limits. In the United States, 47 CFR 1.1310 sets the maximum permissible exposure values and the terms in which compliance is expressed, including the averaging times. Internationally, ICNIRP's 2020 guidelines and IEEE Std C95.1-2019 serve the same function in other jurisdictions. We offer no view on their adequacy.

How to measure and compute exposure. FCC OET Bulletin 65 (Edition 97-01) is the Commission's guidance on evaluating compliance with those limits, by calculation or by measurement, and is the

document most United States practice actually follows. IEC 62232:2025 addresses determination of field strength and power density near base stations for the purpose of evaluating human exposure. IEEE Std C95.3-2021 covers measurement and computation practice. JCGM 100 (the GUM) governs how a measurement uncertainty is estimated and expressed. EN 50413 is the European basic standard for measurement and calculation procedures.

How to monitor continuously. This is the gap worth the Department's attention. The only international instrument addressing continuous monitoring of electromagnetic field levels is **Recommendation ITU-T K.83 (08/2024)**, which specifies methods and system characteristics for continuous monitoring, broadband or frequency selective, in order to assess long term exposure of people from 9 kHz to 300 GHz. It is more demanding than its length suggests. Its mandatory provisions include isotropic measurement, with isotropy deviation below 2.5 dB up to 3 GHz and below 3.5 dB at higher frequencies (clauses 8.7 and 9.2); calibration of the measurement equipment as a complete system at the measurement frequencies, taking the high crest factor of some signals into account (clause 8.6); preamplifiers placed only after a preselector in a frequency selective system (clause 8.8); unattended recovery after a detected interruption, with the interrupted cycle discarded and a warning issued, and measurements set invalid on a detected hardware failure (clause 8.9); and an expanded uncertainty not exceeding 4 dB at a 95 percent confidence interval, with every uncertainty contribution recorded (clause 10). Measurement at a height of concern, typically 1.5 meters, is stated as the procedure rather than as a requirement (clause 8.7), and publication of results in terms the general public can use is recommended rather than required (clause 11). Related instruments are ITU-T K.91 (01/2024) on assessment and monitoring of human exposure and ITU-T K.113 (07/2025) on generating field level maps.

No continuous monitoring standard has been adopted for United States practice, and to our knowledge no continuously operating public exposure monitoring network exists anywhere in the United States. The published instrument is ITU-T K.83, a Recommendation of the International Telecommunication Union, of which the United States is a member state, so the gap is not the absence of a reference document but the absence of a national specification and a program built on one. Several other countries operate national networks of several hundred fixed monitors each. We suggest the Department consider ITU-T K.83 as a starting reference rather than a finished answer, because it addresses the instrument and the measurement point, and says little about what a national program additionally requires: a common data record, provenance, retention, interoperable access, operation of a large population of monitors over years, and the security of the resulting dataset. It addresses local storage only as a buffer against interruption, recommending a capacity exceeding one week (clause 9.3), and sets no archival retention requirement at all. Its surveys of existing national monitoring websites and platforms appear in informative appendices rather than in normative requirements. Those program level requirements, rather than the instrument, are where we would encourage the Department to concentrate.

Question 7: methods available to characterize exposure

Three different activities are routinely conflated, and distinguishing them is the single most useful thing the Department can do when reading submissions.

1. **Prediction and modeling.** Exposure is computed from transmitter parameters, antenna patterns and geometry, usually at rated or worst case power. This is how most compliance determinations in the United States are made, including a large proportion of the reports our own firm produces, in modeling software our own firm wrote, and it is appropriate for that purpose. It describes a calculated condition, not a measured one, and it cannot describe change over time.
2. **Point in time measurement.** An instrument is brought to a location, calibrated measurements are taken over minutes or hours, and a report describes conditions during that window. We have performed this work for more than twenty years. It is reliable for the window it covers and silent about every other moment.
3. **Continuous measurement.** A calibrated instrument remains installed and measures repeatedly for years. This is the method least present in the United States record. Repeated point in time surveys can also detect that conditions have changed between visits; what they cannot do is characterize what occurred in between, so transient and intermittent conditions are missed in proportion to how widely the visits are spaced. Continuous measurement narrows that blind interval rather than eliminating it.

A permanently installed instrument does not automatically produce an uninterrupted record. What it produces depends on its measurement duty cycle, its detector and sampling behavior, its detection thresholds, and its outages. A system that measures for a few minutes every two hours is installed continuously and samples intermittently. Any claim about continuity should therefore be stated as a measured property of the record, with its gaps, rather than inferred from the fact that the instrument is bolted to a wall. We apply that standard to our own equipment and are still characterizing it.

Two further distinctions matter.

Place based measurement is not personal dosimetry. Measuring the radiofrequency environment at a location, which is what our work and all fixed monitoring addresses, does not measure the dose received by an individual, and it does not address specific absorption rate. That distinction concerns what the measurement is, not what it is worth: estimates of individual dose, however they are computed, take external field conditions as their input, so a characterized environmental record is a reference that such work depends on. Personal exposimeters and wearable devices measure something related but different, with their own limitations of body shielding, position and calibration. Submissions that move between the two without saying so should be read carefully.

Broadband and frequency selective measurement answer different questions. A broadband instrument reports a single total for everything within a probe's passband, and cannot say which service a change came from. A frequency selective instrument resolves energy by frequency, which permits attribution to the service allocations present. For longitudinal work, attribution matters: without it, a rise in a measured total cannot be distinguished from a change in one band, from a new emitter, or from an instrument fault.

Attribution by frequency is not identification of a transmitter. Knowing that energy falls within a band tells you which service allocation it belongs to. It does not identify a licensee, a site, an operator or a device, and where allocations are shared or adjacent it may not uniquely identify even the service. We

draw that line explicitly because submissions in this field sometimes blur it, and because a record that implies source identity it cannot support is worse than one that reports the band and stops.

Finally, a method cannot be independently evaluated unless several things are stated that commonly are not: the calibration of the complete system, a measurement uncertainty with the method used to derive it, the detector type, the detector bandwidth and the sampling rate. Those last three determine the shortest event a reported value can represent, and therefore how a reported maximum should be read. This is an observation about what is published, not about any party's good faith.

Question 8: improvements needed in exposure assessment for real world conditions

From field practice, the following would materially improve the evidence base. None of them requires any position on exposure limits.

- **Continuous, unattended operation.** A method that requires a technician present cannot produce a longitudinal record at scale. Instruments must run autonomously through weather, power events and connectivity loss, for years.
- **Coverage held without intervention.** Many instruments cover their nominal range only by swapping probes or antennas. A record assembled from a probe changed between visits is not continuous, and a range that requires a swap is in practice unobserved.
- **Observation of the whole declared range, not only the occupied parts.** It is efficient to concentrate on bands known to carry activity, and it is a defect to abandon the rest, because a new source appears in a band nobody was watching. A method should state both how often the entire range is observed and how often occupied bands are revisited.
- **Declared detector behavior.** As above: detector type, bandwidth and sample rate. A maximum reported by an instrument that cannot resolve a short burst is not a peak, and published product documentation rarely states which the instrument has.
- **Absolute measured quantities, retained as the record.** This is the improvement we would place highest for research use, and it is technically straightforward in systems designed to retain calibrated measurements. Exposure results are commonly reported as a percentage of an applicable regulatory reference level, which is the right presentation for a compliance decision and the wrong one for an archive. A percentage is a derived quantity: it depends on which reference level was applied, and the applicable level varies with frequency. A record that stores only percentages cannot be re-evaluated if the reference changes, cannot be compared across frequencies without unwinding the arithmetic, and cannot support a research question its originator did not anticipate. The underlying calibrated quantity should be the record, in SI units, with the percentage carried alongside as a clearly derived figure together with the identity of the reference level used. A record kept that way can be compared against existing and future standards expressed as a percentage, including ones not yet written, because the comparison is recomputed rather than stored. The same applies to any later aggregation: summaries should be computed from the measured quantities, not from percentages of mixed references.
- **Stated uncertainty, derived by a documented method.** A manufacturer's accuracy figure is not this. A national record will pool instruments from several manufacturers, and two datasets are comparable only if each declares its uncertainty and how that figure was derived. ITU-T K.83 clause

10 already requires each contribution to be recorded by name, probability distribution, sensitivity coefficient and value, which is the practice we would see carried into any United States specification. Uncertainty also propagates: where measured exposure data is later used to compute other quantities, the result inherits the uncertainty of the measurement it began with, which is why that figure has to travel with the record.

- **Faults and gaps that are explicit.** An outage must never be recorded as a low reading, and a period containing gaps must not be presented as fully observed. In our experience this is the most common defect in monitoring data.
- **Provenance that a third party can verify.** A record should carry enough about its own origin, instrument, calibration state and handling that somebody outside the organization that produced it can establish where each value came from. This is a property of the record, not a judgment about who operates the equipment.
- **Declared capability above roughly 6 GHz.** Instruments differ in whether they quantify energy in those bands, detect its presence only, or do not cover them at all. All three are legitimate engineering choices, and the useful requirement is that a record state which one applies to it, since only a quantified value will support a quantitative claim.
- **Declared measurement duration and duty cycle.** Continuous installation and continuous measurement are not the same thing. A record should state how long each measurement lasts and how much of the elapsed time is actually observed, because claims about cumulative exposure cannot be evaluated without it.

Question 9: what information should be disclosed, and to whom

Our firm has spent two decades explaining measurement results to carriers on one side and to municipalities, school boards and residents on the other. Three observations.

The presumption should be awareness and characterization of environmental conditions. What is present at a place, how it compares with the applicable regulatory reference, and how it has changed, should be available at the finest granularity of place, time and frequency that security permits, with the granularity stated. In our experience, public concern at a site is driven less by the measured values than by the absence of any continuous record to point to, and information that arrives generalized or late tends to confirm the concern rather than answer it.

Infrastructure detail is a separate question from environmental detail. Network configuration, equipment identity, site architecture and security arrangements are not the public's environmental information, and aggregated nationally they describe the operating posture of communications infrastructure. These two things can be separated, and a well designed program separates them: publish the environment, protect the architecture.

Presentation should be neutral and complete. A disclosed value needs its applicable reference value, its uncertainty, its averaging basis and its gaps, and it needs to avoid characterizing the result in health terms in either direction. Where a figure is a maximum or a peak derived quantity rather than the time averaged quantity the regulatory limit is expressed in, that must be stated plainly; otherwise a comparison is being made between two different things.

For schools, workplaces and public buildings specifically, what people ask us for is almost always the same: what is here, how does it compare with the limit, is it changing, and who measured it.

Question 10: data sources and surveillance systems that exist or should be developed

What exists today. Compliance documentation for wireless sites. FCC licensees are responsible for demonstrating that their sites comply with 47 CFR 1.1310, and the documentation produced to do so is site specific, point in time and largely modeled. Equipment authorization data, which is device level and laboratory based. Occasional academic and municipal measurement campaigns. Modeled exposure maps, including a national modeled map launched in Italy in September 2026. Carrier network data, which is operator held and not independent.

What does not exist. To our knowledge, there is no continuously measured, calibrated, frequency attributed record of ambient exposure at fixed locations in the United States, retained over years and available to researchers in a common format. The absence of that record is, in our view, the central obstacle to answering several of the Department's other questions, and it cannot be remedied retrospectively.

What such a system requires. From designing and operating continuous monitoring, and from two decades of producing the compliance documentation that is the main alternative to it, the requirements that matter most are these:

- the measured quantity itself, in SI units, as the thing retained, with percentages of regulatory reference levels carried as derived values and the reference identified, so the record remains interpretable if the reference changes;
- a common, versioned, open record format, so that data from different suppliers and programs can be pooled;
- provenance on every record, including how the value was produced, by what instrument, in what calibration state;
- **conformance tiers**, so that authoritative calibrated measurement, supporting operator or modeled data, and indicative crowd sourced contributions can all be carried without ever being mistaken for one another;
- machine accessible interfaces, not a supplier's dashboard;
- defined retention with explicit gaps, and the metadata needed to reconstruct historical conditions;
- portability, so the record survives a change of supplier, operator or platform;
- and protection of the dataset itself, including its residency and access control, since aggregated national measurement of communications infrastructure is sensitive in a way no single reading is.

Contributed data from mobile applications, vehicles and consumer devices can usefully broaden coverage, provided it is tiered and never presented as equivalent to calibrated fixed measurement.

The individual components are not speculative. Continuously operating monitors, calibration and provenance chains, ingest paths and public presentation layers all exist and are in service. We have built and operate a presentation layer of this kind ourselves, a public map that reports measured values at monitored locations beside the applicable regulatory reference value, with the provenance of each figure and an explicit distinction between measured and modeled surfaces. We offer that only as

evidence that publication and presentation are tractable. We would not claim that a national program follows automatically from the components existing. Deployment at national scale, interoperability across suppliers, quality assurance, cybersecurity and sustained operations are substantial systems engineering problems in their own right, and they are the ones that determine whether such a program produces a usable dataset or an expensive one. What is absent today is the specification those problems would be solved against.

A published specification should come first. The United States has no specification of its own for continuous RF exposure monitoring. The nearest published instrument is ITU-T K.83, the ITU Recommendation discussed under question 5, which addresses the instrument and the measurement point and is silent on the program level questions above. We recommend that the Department encourage the development and publication of a consensus specification for the continuous exposure record: what is measured, how energy is attributed by frequency, what each record must carry, what calibration state and measurement uncertainty must be declared, how long data is retained, how it is accessed, and how the dataset as a whole is protected. The right venue is an accredited standards developer or an industry association operating its own consensus process, not a single firm and not any vendor's product documentation.

Published, testable requirements are also what keeps a program of this kind competitive. A buyer can measure any supplier's system against them, several suppliers can meet them by different means, and no supplier, our own firm included, can hold a position it has not earned on the measurements. A specification written to fit one product would be worth less to the Department than no specification at all.

In summary, we recommend three actions. These are the same three set out at the front of this response.

1. **Recognize the longitudinal measurement gap** as a priority in federal radiofrequency exposure research and environmental surveillance. Conditions that were never measured cannot be reconstructed later by modeling.
2. **Encourage development of a vendor neutral national measurement and data specification**, through an accredited standards developer or an industry association operating its own consensus process, addressing measurement methods, frequency coverage, temporal resolution, calibration, stated uncertainty, detector declaration, absolute measurement units with derived regulatory comparisons, data provenance, completeness and gaps, retention, interoperable access, and protection of the resulting dataset. Existing international standards, ITU-T K.83 in particular, are a useful starting point rather than a finished answer.
3. **Evaluate a coordinated, independently administered monitoring framework** capable of supporting federal research, independent analysis and appropriate public disclosure. We suggest evaluation rather than deployment deliberately. The questions of who administers such a framework, how it is funded, and what equipment it uses are separate from whether the data is worth having, and the first of those to settle is the last one.

Question 13: how current and emerging technologies affect cumulative exposure patterns

We can speak to what we observe in the field rather than to health implications.

Densification has changed the geometry of exposure. Small cells sited at street level, distributed antenna systems indoors, fixed wireless access, Wi-Fi in the 6 GHz band, and 5G deployments in both mid band and millimeter wave bands mean that more sources are closer to more people, and that the spectral composition of the environment at a given place changes more often than it did a decade ago. Whether that matters for health is outside our comment.

What follows for measurement is specific. **Cumulative exposure is a property of a record, not of a reading.** Answering a cumulative question requires the ability to produce, from retained data, summaries over arbitrary windows: means, maxima, the proportion of the window actually observed, and the time spent above whatever threshold the authority chooses. A monitoring program that stores only instantaneous readings, or that observes a small fraction of wall clock time, cannot support cumulative conclusions no matter how many readings it accumulates. We suggest the Department ask of any cumulative claim: over what window, with what completeness, and measured or modeled.

One terminology point, since the word carries two meanings in this field. What a fixed monitor can produce is a **time integrated environmental measurement**: the exposure conditions present at a location over a stated window. That is not an individual's **cumulative dose**, which depends on where that person was, for how long, and on absorption in the body. The environmental record is a necessary input to any dose estimate and is not a substitute for one. We use the environmental sense throughout this response.

Question 15: evidence concerning wireless infrastructure exposure

This is the area of our longest direct experience.

- **Compliance at infrastructure sites is overwhelmingly assessed by calculation at installation**, against rated or worst case parameters, and is seldom revisited by measurement as a site changes. Sites change frequently: carriers add bands, change antennas, adjust power and add tenants.
- **Co-location is the norm**, with several licensees on one structure. Without frequency attribution, a measured change at such a site cannot be assigned to a service, which limits what any measurement can be used for.
- **Where people actually are matters more than the maximum anywhere.** Rooftop access areas, maintenance pathways and areas adjacent to street level installations are where our measurements most often find the values that require signage, barriers or power management, and those are circumstances created by geometry and access, not by network type.
- **Occupational exposure and public exposure are different problems** with different limits, different access controls and different mitigations, and submissions that treat them together should be read with care.
- **Neighborhood scale questions require fixed monitoring over time.** A single survey at one address answers a narrower question than residents usually think it does, and we say so when we deliver one.

Question 16: highest priority research gaps

1. **The absence of a measured longitudinal baseline.** Every question about change over time inherits it. This is the gap we would place first, and it is the only one that gets worse with delay.
2. **Uncertainty and comparability.** Without stated uncertainty derived by documented methods, and a common record format, datasets from different programs cannot be pooled, and the research community is left with incomparable islands of data.
3. **Peak and time averaged levels as actually deployed.** Transmitted levels vary with network activity, so a measured maximum and a measured average describe different things. Whether that difference matters to health is a question we do not address. What is missing is the measurement: few deployed instruments record both quantities, and almost none state the detector characteristics needed to interpret a reported maximum.
4. **Geospatially linkable records.** Exposure data that cannot be joined to population, facility or health datasets at a defensible spatial resolution is of limited use to epidemiology.

Question 17: improving coordination across federal agencies

Our observation from working with carriers, municipalities and federal sites is that the measurement layer is natural common ground, because it is prior to the questions agencies disagree about.

- **One record, many users.** A single measured dataset, specified once, can serve FDA, NIH, CDC, occupational safety bodies, environmental agencies and state and local authorities, each asking its own questions of it.
- **Ownership and portability.** If such a record is created with public funds it should be owned by the sponsoring authority, in an open format, exportable in full, and independent of any supplier's platform. A research asset should not be contingent on a commercial relationship.
- **Measurement is agnostic to mandate.** A measured record of environmental conditions does not presuppose any particular allocation of authority among agencies, and nothing the Department does on measurement needs to disturb that question. Keeping the measurement question distinct from the question of limits is what allows agencies with different mandates to use the same data.
- **Specify the data, not the instrument.** Requirements expressed as outcomes, with objective acceptance tests, keep a program open to multiple suppliers and to improvement over time. A published consensus specification, as described under question 10, is the practical form of that, and none has been published for United States practice.

Question 18: other information the Department should consider

Two closing points.

First, **the measurement questions in this request can be answered without resolving the health questions**, and progress on the former does not commit the Department to any position on the latter. A measurement record accumulates value while scientific debate continues, and cannot be created after the fact.

Second, we would be pleased to brief Department staff on practical measurement matters, including what is and is not determinable from existing compliance documentation, with no position taken on exposure limits.

References

Cited above, and offered as the measurement methodology documents the Department may find useful. We cite documents that address how exposure is measured and reported. We do not cite the documents in which exposure limits themselves are derived or debated, consistent with taking no position on limits.

- ITU-T Recommendation K.83 (08/2024), *Monitoring of electromagnetic field levels*. https://www.itu.int/rec/R-REC-K.83/en
- ITU-T Recommendation K.91, *Guidance for assessment, evaluation and monitoring of human exposure to radio frequency electromagnetic fields*. https://www.itu.int/rec/T-REC-K.91/en
- ITU-T Recommendation K.113, *Generation of radiofrequency electromagnetic field level maps*. https://www.itu.int/rec/T-REC-K.113/en
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- IEEE Std C95.3-2021, *Recommended Practice for Measurements and Computations of Electric, Magnetic, and Electromagnetic Fields with Respect to Human Exposure to Such Fields, 0 Hz to 300 GHz*. https://standards.ieee.org/ieee/C95.3/7231/
- JCGM 100:2008, *Evaluation of measurement data: Guide to the expression of uncertainty in measurement* (GUM). https://www.bipm.org/en/committees/jc/jcgm/publications
- ISO/IEC 17025:2017, *General requirements for the competence of testing and calibration laboratories*. https://www.iso.org/standard/66912.html
- FCC, Office of Engineering and Technology, *Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields*, OET Bulletin 65, Edition 97-01 (1997). https://www.fcc.gov/general/oet-bulletins-line
- 47 CFR 1.1310, *Radiofrequency radiation exposure limits*. https://www.ecfr.gov/current/title-47/section-1.1310
- 47 CFR 1.1307(b), *Actions that may have a significant environmental effect*. https://www.ecfr.gov/current/title-47/section-1.1307
- NIST Special Publication 800-53, Revision 5, *Security and Privacy Controls for Information Systems and Organizations*, cited for the dataset protection requirements referenced under questions 9 and 10. https://csrc.nist.gov/pubs/sp/800/53/r5/upd1/final

Links were current as of the date of filing. Where a document is available only from a standards body on commercial terms, the publisher's catalog page is given rather than the document itself.

Respectfully submitted,

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