The Legal Argument for a Revised Wireless Telecommunication Ordinance for Nevada City, CA

The Legal Argument for a Revised Wireless Telecommunication Ordinance for Nevada City, CA
Nevada City Public Working Group – 3/6/2020

FCC Orders: FCC 18-111 and FCC 18-133 - *Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment; Declaratory Ruling and Third Report and Order; WT Docket No. 17-79; WC Docket No. 17-84.*

At its September 2018 open meeting, the FCC adopted a report and order (collectively, the "Order") in its ongoing proceeding to streamline the rollout of infrastructure for broadband services, including small cells for 4G and 5G wireless service. The Order has two parts:

(1) an new set of regulations (the "Rules") that govern shot clocks and other limited aspects of the rollout of small wireless facilities (a/k/a "small cells") and,

(2) a Declaratory Ruling that does not enact any new regulations but is the FCC's interpretation of how the provisions of Section 253 and 332(c)(7) of the Communications Act that limit state or local regulations that "effectively prohibit" the provision of wireless services should be applied. The Declaratory Ruling portion of the Order adopts the position that a state or local government need only "materially inhibit" a particular small wireless facility deployment in order for its action to constitute an "effective prohibition" under Section 253 or 332(c)(7).

Based on this conclusion, the Declaratory Ruling provides guidance on fees local governments may charge and on how they may regulate ancillary rollout issues such as tower spacing, equipment design and other aesthetic concerns. **In lay terms, this means the FCC is making it easier for private companies to take local governments to court if they believe municipal policies are effectively prohibiting network investment.**

Legal Advice Given to Nevada City by Jones & Mayar, CMS, and the Development of the Ordinance and Public Working Group:

Based on this perception of litigious risk, the writing of Nevada City's Wireless Telecommunications Ordinance by Baron Bettenhausen, legal counsel for Jones and Mayer and hired by the City, took a cautionary approach. Consultants Robert Ross and Rusty Monroe from the Center for Municipal Solutions also contributed to the ordinance. As a strong reminder to the City Council and City Manager, local officials are **advised** by attorneys and consultants, the City doesn't report to them, nor are is the City obligated to accept their advice or ordinances written by them.

It was revised twice, Ordinance No. 2019-02 and Ordinance No. 2019-06, before being voted on by the City Council on September 11, 2019 and accepted, and again voted upon and accepted after an agendized discussion on September 25, 2019.

Public concern was expressed at the September 11, 2019 City Council meeting and subsequent City Council meetings regarding the ordinance development process, the lack of public input, the removal of certain protections between the first and second versions, and **the perceived weakness of the ordinance which does not utilize the City's current full Federal legal authority.**

The unofficial *Nevada City Wireless Telecommunications Ordinance Public Working Group (PWG)* was formed after the September 25, 2020 vote, comprised of members of the public who are working towards adoption of amendments to the ordinance. The amendment suggestions take into account the current Federal law and are following the example of existing wireless telecommunication ordinances

within California that address the latest FCC Order. At the December 10, 2019 City Council Meeting, the City agreed to having the PWG's suggested amendments, which were written into a copy of existing ordinance as a draft, reviewed by Bettenhausen and Ross and directed them to provide feedback in the form of written comments. The PWG's submission was done on December 11, 2019 via email to the City Manager and City Council.

On January 9, 2020, Catrina Olson, the City Manager received the feedback from Ross. On January 22, 2020, she received Bettenhausen's feedback. On January 23, 2020, the PWG emailed Olson and the City Council, asking for the feedback. On January 30, 2020, Council Member Duane Strawser emailed saying Olsen would be emailing the feedback to the PWG. Almost a month later, on February 4, 2020, Olson sent the feedback from both Bettenhausen and Ross to the PWG. The PWG reviewed the feedback and began development of their response on February 5, 2020.

On February 12, 2020, the PWG and Olson decided to move that night's City Council Agenda Item regarding the Amendments to the March 11, 2020 City Council meeting. This was so a meeting could be scheduled between the PWG, Bettenhausen, Ross and the City to discuss the amendment suggestions, the subsequent feedback and come to agreements on what would be included in a version that the Council could vote upon. A request to set this meeting was sent by the PWG to Olsen on February 18, 2020. On February 20, 2020 Olson responded that she will reach out to Bettenhausen and Ross to schedule, and required the PWG to meet with Council Member Duane Strawser first. On March 2, 2020, Strawser reached out to the PWG to set a meeting scheduled for March 6, 2020. The delay in meeting with Strawser delays the meeting with Bettenhausen and Ross, which delays the amendment review at the March 11, City Council meeting. Olson suggested that the PWG give an update to the Council on the Amendment review process at the March 11th meeting, and then reschedule the first reading of the amendments at the March 25, 2020 City Council meeting, giving the PWG time to meet with Bettenhausen and Ross.

When the amendments come up for the City Council vote, they will have been written by Bettenhausen. The PWG was given assurance by the City Manager that the version to be voted upon will be the final version that is worked on by the PWG and Bettenhausen, and that the PWG will have an opportunity to review carefully the tracked changes that have been worked on, compared to the final version to be voted on. Similar to the Nevada City Cannabis ordinance process, the public will verify that the final version to be voted upon is vetted for accuracy, to ensure a transparent and efficient process.

Legal Authority – The FCC, 1996 Telecommunication Act and Local Governments

In the following pages, the PWG is making the case to Bettenhausen, Ross and the City that the cautionary approach to a perceived risk of litigation by a telecommunications carrier is not in the best interest of Nevada City. The PWG's suggested amendments will create a stronger ordinance utilizing the full authority of the City's legal rights, backed by current Federal law and the precedence of existing California municipal ordinances.

Ultimate Version of the Telecommunications Act (S.652 passed in Feb 1996):
Section 253(a) provides that "[n]o State or local statute or regulation, or other State or local legal requirement, may prohibit or have the effect of prohibiting the ability of any entity to provide any interstate or intrastate telecommunications service." Section 332(c)(7) provides that "[t]he regulation of the placement, construction, and modification of personal wireless service facilities by any State or local

government or instrumentality thereof—(I) shall not unreasonably discriminate among providers of functionally equivalent services; and (II) shall not prohibit or have the effect of prohibiting the provision of personal wireless services."

The *1996 Telecommunications Act Amendments, in Section 704 of the Facilities Siting; Radio Frequency Emission Standards* states:
(a) National Wireless Telecommunications Siting Policy. — Section 332(c) (47 U.S.C. 332(c)) is amended by adding at the end the following new paragraph:
(7) **Preservation of local zoning authority.** —
(A) General authority. — Except as provided in this paragraph, **nothing in this Act shall limit or affect the authority of a State or local government** or instrumentality thereof over decisions regarding the **placement, construction, and modification** of personal wireless service facilities.

FCCs Purpose and Authority

U.S. Code Title 47 § 151 Purposes of Federal Communications Commission. LII –> U.S. Code –> Title 47. TELECOMMUNICATIONS –> Chapter 5. WIRE OR RADIO COMMUNICATION –> Subchapter I. GENERAL PROVISIONS –> Section 151. Purposes of Federal Communications Commission

For the purpose of regulating
- **interstate** commerce and
- **foreign** commerce

. . . in **communication by wire** **and radio**
. . . so as to make available, so far as possible, to all the people of the United States without discrimination on the basis of race, color, religion, national origin, or sex, a rapid, efficient, Nation-wide, and world-wide wire and radio communication service with **adequate facilities at reasonable charges,**
- for the purpose of the national defense,
- for the purpose of **promoting safety of life and property**

. . . through the use of wire and radio communications,
. . . and for the purpose of securing a more effective execution of this policy by centralizing authority heretofore granted by law to several agencies and by granting additional authority with respect to interstate and foreign commerce in wire and radio communication, there is created a commission to be known as the "**Federal Communications Commission**", which shall be constituted as hereinafter provided, and which shall execute and enforce the provisions of this chapter.
(June 19, 1934, ch. 652, title I, § 1, 48 Stat. 1064; May 20, 1937, ch. 229, § 1, 50 Stat. 189; Pub. L. 104–104, title I, § 104, Feb. 8, 1996, 110 Stat. 86.)

Note: the FCC's purpose does not grant the FCC authority over matters of intrastate commerce.

Current Litigation

February 11, 2020: U.S. Court of Appeals, Ninth Circuit Case 19-70144 et al. in Pasadena, CA.

Hearing on: *18-72689 Loc. Gov vs. FCC - Plaintiff seeks to Repeal FCC 18-111 and FCC 18-133*

The PWG agrees with the Plaintiff's position - the presumptive claims of FCC 18-111 and 18-133 are fragile; local authority is not constrained by the FCC Order of Aug. 2018. The Rule of Law, the Telecommunications Act of 1996 still holds.

- Per the FCC's interpretation of their Order: if the telecom carrier wants to replace a city utility pole to install a wireless facility, the city can't say no. The city can't ask carrier for proof of need; the city can't tell the applicant where to put it as an alternative; the city would have to accept and approve construction at any time; the city can't defend timing of construction.
- Under current law, Congress intended to preserve local authority; The FCC hasn't proven and defined standards of effective prohibition, aesthetics, or moratorium; they need to have limiting standards.

Four Flaws with the FCC Order as presented by the Plaintiffs:

1. The FCC is using a wrong definition of **effective prohibition;** a violation of the 1996 Telecommunications act of 1996, Sections 253A or 332C7; the city's action must directly prohibit. The FCC didn't apply an actual prohibition standard in adopting these rules. That is clear in the aesthetics discussion where the FCC says if they have to learn all the local rules and it causes them confusion, they argue they are prohibited. But their own case, 9th Circuit San Francisco vs. T-Mobile, it was determined that the mere cost does not rise to the occasion of prohibition.

   PWG Note: In the Small Cell Order, the FCC reaffirmed its interpretation that a locality can violate the "effective prohibition" language of Sections 253 and 332 by enacting regulations that merely "materially inhibit" the ability of wireless carriers to provide services. It specifically included in this category local regulations that affect carriers' ability to densify their networks or to add capacity to their networks. A regulation should not be seen as "materially inhibiting" any carrier's ability to offer its services, so long as a reasonable number of potential wireless facility locations would be available under the objective criteria. Such a regulation would be even more defensible if it has a "safety valve" that allows a carrier to meet capacity needs by allowing for placement of additional wireless facilities that do not meet the objective criteria. The regulation could even place the burden on the carrier to demonstrate the need for any additional non-compliant facility. A single "safety valve" decision would involve a limited geographic area and would be fact-specific, and should not be challengeable as a "material inhibition" on provision of wireless service in the locality.

2. Same thing with the **moratorium** – the FCC never considers if the city can plan around local construction prohibitions, which they can. FCC assumed that any delay in the permitting process is a material prohibition of putting in the type of facilities they want with the functional characteristics it wants in the time it wants. They failed to apply the standard the US Court of Appeals adopted based on plain language and preserving local zoning authority.

3. **Fees above cost:** FCC is assuming that if fees are above the $270 annual limit, it's a prohibition. Scenario – city denies permit for failure to pay their fee, applicant takes them to federal court to

show prohibition under 253D. The subsidy they say they will save from the above cost fee will go to rural less profitable areas is not proven by economic theory.

PWG NOTE: Within the Order, there is a presumed safe harbor for application and use fees, but no specific cap on fees:

- The safe harbor amounts are:
  (a) $500 for a single up-front application that includes up to five Small Wireless Facilities, with an additional $100 for each Small Wireless Facility beyond five,
  (b) $270 per Small Wireless Facility per year for all recurring fees, including any possible ROW access fee or fee for attachment to municipally-owned structures in the ROW, and
  (c) $1,000 for nonrecurring fees for a new pole.

The Order identifies application and usage fee amounts that are neither caps nor safe harbors, but simply what the FCC believes are levels at which carriers will not file legal challenges. The Order identifies $270 per year as a presumptively reasonable annual usage fee. This covers the right to attach an antenna to a pole or other facility and to locate associated equipment nearby. But if a city is providing not just the right to place antennas on city-owned poles, but ancillary facilities or services (such as access to electricity, existing underground ducts and underground casements at each pole), the FCC fee "guidelines" do not apply and the city can set the usage fees at any level it wishes. Cities should not be misled by carriers falsely claiming that the FCC's $270 annual usage fee includes anything other than the right to mount an antenna on a pole and put equipment nearby.

4. **The FCC must preserve local zoning authority per the Telecom Act – that is the intention of Congress.** Section 332 is the only provision that applies to the decisions regarding the placement of wireless facilities. The FCC made an error in saying otherwise. **Under Section 332c it's clear that what Congress was contemplating was a localized determination on a case by case basis of placement of facilities. The regulation of the operations of Wireless Telecommunications Facilities was never preempted from local zoning authority.**

PWG NOTE - See: *United States Supreme Court (2005) CITY OF RANCHO PALOS VERDES et al. v. ABRAMS (2005) No. 03-1601; Argued: January 19, 2005 | Decided: March 22, 2005 - CITY OF RANCHO PALOS VERDES, CALIFORNIA, et al., PETITIONERS v. MARK J. ABRAMS. . . on writ of certiorari to the United States Court of Appeals for the Ninth Circuit, March 22, 2005:*

Justice Scalia writes for the Supreme Court: *"Enforcement of §332(c)(7) through §1983 would distort the scheme of expedited judicial review and limited remedies created by §332(c)(7)(B)(v). We therefore hold that the 1996 Telecommunications Act — by providing a judicial remedy different from §1983 in §332(c)(7) itself — precluded resort to §1983. The judgment of the Ninth Circuit Court of Appeals which awarded attorneys fees is reversed, and the case is remanded for further proceedings consistent with this opinion...It is so ordered."*

Justice Breyer, with whom Justice O'Connor, Justice Souter and Justice Ginsburg join, concurring. *"I agree with the Court. It wisely rejects the Government's proposed rule that the availability of a private judicial remedy "*conclusively establishes *. . . a congressional intent to preclude (Rev. Stat. §1979, 42 U. S. C.) §1983 relief."* Ante*, at 8 …The statute books are too many, federal laws too diverse, and their purposes too complex, for any legal formula to provide more than general guidance. Cf.* Gonzaga Univ. *v.* Doe*, 536 U. S. 273, 291 (2002)… The Court today provides general guidance in the form of an "ordinary inference" that when Congress creates a specific judicial*

remedy, it does so to the exclusion of §1983. Ante*, at 8. I would add that context, not just literal text, will often lead a court to Congress' intent in respect to a particular statute. Cf.* ibid*. (referring to "implicit" textual indications). Context here, for example, makes clear that Congress saw a national problem, namely an "inconsistent and, at times, conflicting patchwork" of state and local siting requirements, which threatened "the deployment" of a national wireless communication system. H. R. Rep. No. 104-204, pt. 1, p. 94 (1995)…Congress initially considered a single national solution, namely a Federal Communications Commission wireless tower siting policy that would pre-empt state and local authority. Ibid.; see also H. R. Conf. Rep. No. 104-458, p. 207 (1996). But Congress ultimately rejected the national approach and substituted a system based on cooperative federalism. Id., at 207-208."*

Cooperative federalism is a concept of federalism in which federal, state, and local governments interact cooperatively and collectively to solve common problems, rather than making policies separately but more or less equally or clashing over a policy in a system dominated by the national government.

State and local authorities would remain free to make siting decisions. They would do so, however, subject to minimum federal standards of "placement, construction and modification of personal wireless facilities" — both substantive and procedural — as well as federal judicial review.

In the *Penultimate* Version of the TCA (HR 1555 from Fall 1995), in Section 107, the words operate and operation appear throughout. In the *Ultimate* Version of the TCA (S.652 passed in Feb 1996), in Section 704, the words operate and operations were removed, expressing Congressional intent:

1996 — SEC. 704. FACILITIES SITING; RADIO FREQUENCY EMISSION STANDARDS.

(a) National Wireless Telecommunications Siting Policy. — Section 332(c) (47 U.S.C. 332(c)) is amended by adding at the end the following new paragraph:

(7) **Preservation of local zoning authority.** —

(A) General authority. — Except as provided in this paragraph, **nothing in this Act shall limit or affect the authority of a State or local government** or instrumentality thereof over decisions regarding the **placement, construction, and modification** of personal wireless service facilities.

(B) Limitations. —

(i) The **regulation of the placement, construction, and modification** of personal wireless service facilities by any State or local government or instrumentality thereof —

(I) shall not unreasonably discriminate among providers of functionally equivalent services; and

(II) shall not prohibit or have the effect of prohibiting the provision of personal wireless services.

(ii) A State or local government or instrumentality thereof shall act on any request for authorization to **place, construct, or modify** personal wireless service facilities within a reasonable period of time after the request is duly filed with such government or instrumentality, taking into account the nature and scope of such request.

(iii) Any decision by a State or local government or instrumentality thereof to deny a request to **place, construct, or modify** personal wireless service facilities shall be in writing and supported by substantial evidence contained in a written record.

(iv) No State or local government or instrumentality thereof may regulate the **placement, construction, and modification** of personal wireless service facilities on the basis of the **environmental effects** of radio frequency emissions to the extent that such facilities comply with the Commission's regulations concerning such emissions.

(v) Any person adversely affected by any final action or failure to act by a State or local government or any instrumentality thereof that is inconsistent with this subparagraph may, within 30 days after such action or failure to act, commence an action in any court of competent jurisdiction. The court shall hear and decide such action on an expedited basis. Any person adversely affected by an act or failure to act by a State or local government or any instrumentality thereof that is inconsistent with clause (iv) may petition the Commission for relief.

(C) Definitions. — For purposes of this paragraph —

(i) the term '**personal wireless services**' means commercial mobile services, unlicensed wireless services, and common carrier wireless exchange access services;

(ii) the term '**personal wireless service facilities**' means facilities for the provision of personal wireless services; and

(iii) the term '**unlicensed wireless service**' means the offering of telecommunications services using duly authorized devices which do not require individual licenses, but does not mean the provision of direct-to-home satellite services (as defined in section 303(v))."

***18-72689 Loc. Gov vs. FCC*: Plaintiff's Argument Regarding Publicly Owned Utility Placements**

Section 224 of the Telecommunications Act – Congress stated the only grant of authority over electric utility poles in Telecommunications Act is found in section 224 which explicitly denies the FCC's authority with respect to public power utility poles. It grants the FCC authority to regulate rates, terms and conditions by cable companies to electric utility poles but was explicitly denied authority with respect to public power utilities and electric co-ops. As part of the '96 Telcom Act, Congress amended section 224 to expand the scope of it to telecom carriers in addition to cable operators, however it preserved the withholding of authority for electric co-ops and public power utilities. Significantly at the very same time as Congress enacted those amendments to section 224 it also adopted section 253 as well as amendment to section 332c7, neither of which address access to local government facilities.

The FCC bemoans the fact that they do not have control over local utility poles. The FCC is stating in their regulatory order that they do have this authority under section 253. In a single footnote, the FCC brushes aside arguments made about section 224 without elaboration and no meaningful statutory analysis. Specifically, the FCC states that Section 253 is an independent source of authority with respect to the very same poles that Section 224 expressly prohibits them from regulating. However, Section 253 is not a separate source of authority because Sec. 253 on its face only address government entities acting in a regulatory capacity and deals with state laws and regulations and legal requirements that are imposed in regulatory capacity and it doesn't in any way address access to facilities.

The FCC misapplied the Market Participant Doctrine which this Court has found to be application to Sec. 253. The Market Participant Doctrine under Boston Harbor and its progeny is that the presumption is that when a state or local government or entity is presumed to have the ability to act in a proprietary capacity as long as such conduct is analogous to other private entities in that space. The FCC has flipped

that and states that a government entity is not protected unless the statute "carves out an exception for proprietary activities." That's simply not what the Boston Harbor Market Participant Test says.

The FCC has regulatory authority over utilities for governing attachments and the section the court is talking about is a carve-out for the ability of the states to opt out the FCCs pole attachment authority by reverse preempting and saying we actually regulate utilities of this type on our own. The California PUC regulates private utility and so section 224c1 does not apply. Congress is talking about public facilities, and so that section does not apply. It states the public utility is not the type of utility subject to any FCC pole attachment authority. Section 253 doesn't say anything about facilities or utilities at all. Sec. 253 is general in authority to the FCC and Sec. 224 is a specific prohibition.

PWG NOTE: The Order does not impose non-discrimination requirements, i.e., it does not require municipalities to treat wireless carriers the same as they treat electric companies, cable companies or other utilities. The non-discrimination requirements identified in the Order are the FCC's interpretations of the language of Sections 253 and 332(C)(7), and are limited in scope. Section 253(a) addresses only state or local government actions (including discrimination) that effectively prohibit "any interstate or intrastate telecommunications service," while Section 332(c)(7)(B)(i)(II) is even narrower: only actions that effectively prohibit "personal wireless services," which is a small subset of telecommunications service. Thus, Section 253 only limits discrimination between providers of "telecommunications service," and the only type of discrimination that could potentially be problematic under Section 332(C)(7) would discrimination between "competing wireless services." Therefore, the Order does not (and the FCC could not) prohibit discrimination in fees, aesthetic requirements and application requirements as between wireless carriers and companies that do not provide "telecommunications service," a category that includes not only traditional utilities, but also cable companies and even wireline broadband Internet access providers (which under current FCC rules are not providers of telecommunications services).

***18-72689 Loc. Gov vs. FCC*: Plaintiff's Argument Regarding: Radio Frequency Issue**

In response to rule making comments by Montgomery County, MD that the FCC's RF exposure standards may not reflect the current safety research or account for this new 5G that we're going to see in the coming years and that the FCC must resolve those issues before accelerating the siting and the operation of these 5G small cells on public rights of way, the FCC offered a single sentence: It said it disagreed with any concerns that Montgomery County, MD or others have.

The burden of this court is heavy on the FCC – it has to show there is no possible way for this court to give any relief and so in our case we are asking the FCC to explain in the context of this order why RF is irrelevant or why it thinks it's important and how it's going to resolve this issue. No where in the rulemaking or 6 pages of 28J letters do they discuss the 5 G environment, densification, millimeter waves. In this case, we didn't get relief that we want. Our argument is they haven't addressed the issue. Montgomery County, MD wants to tell the residents 5G is safe that are being deployed, but the answer to safety is not answered. FCC didn't address the issue. They don't explain their decision, despite the huge record of concern. Two cases – in the 9th and DC Circuit – consolidating to DC in appeal to the order.

CURRENT LAW
FACILITIES SITING; RADIO FREQUENCY EMISSION STANDARDS Pages 207-209
CONGRESSIONAL CONFERENCE REPORT [To accompany S. 652] SECTION 704
See : https://www.congress.gov/104/crpt/hrpt458/CRPT-104hrpt458.pdf **(Summary Below)**

Senate bill: No provision.
House amendment: Section 108 of the House amendment required the Commission to issue regulations within 180 days of enactment for siting of CMS. A negotiated rulemaking committee comprised of State and local governments, public safety agencies and the affected industries were to have attempted to develop a uniform policy to propose to the Commission for the siting of wireless tower sites. The House amendment also required the Commission to complete its pending Radio Frequency (RF) emission exposure standards within 180 days of enactment. The siting of facilities could not be denied on the basis of RF emission levels for facilities that were in compliance with the Commission standard. The House amendment also required that to the greatest extent possible the Federal government make available to use of Federal property, rights-of-way, easements and any other physical instruments in the siting of wireless telecommunications facilities.

Conference agreement:

The conference agreement creates a new section 704 which **prevents Commission preemption of local and State land use decisions** and **preserves the authority of State and local governments over zoning and land use matters** except in the limited circumstances set forth in the conference agreement. The conference agreement also provides a mechanism for judicial relief from zoning decisions that fail to comply with the provisions of this section. It is the intent of the conferees that other than under section 332(c)(7)(B)(iv)of the Communications Act of 1934 as amended by this Act and section 704 of the Telecommunications Act of 1996 the **courts shall have exclusive jurisdiction over all other disputes arising under this section**. **Any pending Commission rulemaking concerning the preemption of local zoning authority over the placement, construction or modification of CMS facilities should be terminated.**

When utilizing the term ''functionally equivalent services'' the conferees are referring only to personal wireless services as defined in this section that directly compete against one another. The intent of the conferees is to ensure that a State or local government does not in making a decision regarding the **placement, construction and modification** of facilities of personal wireless services described in this section unreasonably favor one competitor over another. The conferees also intend that the phrase ''unreasonably discriminate among providers of functionally equivalent services'' will **provide localities with the flexibility to treat facilities that create different visual, aesthetic, or safety concerns differently to the extent permitted under generally applicable zoning requirements** even if those facilities provide functionally equivalent services. **For example, the conferees do not intend that if a State or local government grants a permit in a commercial district, it must also grant a permit for a competitor's 50-foot tower in a residential district.**

Actions taken by State or local governments shall not prohibit or have the effect of prohibiting the **placement, construction or modification** of personal wireless services. It is the intent of this section that bans or policies that have the effect of banning personal wireless services or facilities not be allowed and that decisions be made on a case-by-case basis.

Under subsection (c)(7)(B)(ii), decisions are to be rendered in a reasonable period of time, taking into account the nature and scope of each request. **If a request for placement of a personal wireless service facility involves a zoning variance or a public hearing or comment process, the time period for rendering a decision will be the usual period under such circumstances**. It is **not the intent of this provision** to give preferential treatment to the personal wireless service industry in the processing of requests, or **to subject their requests to any but the generally applicable time frames for zoning decision**.

The phrase ''substantial evidence contained in a written record'' is the traditional standard used for judicial review of agency actions.

The conferees intend section 332(c)(7)(B)(iv) to prevent a State or local government or its instrumentalities from basing the regulation of the **placement, construction or modification** of CMS facilities directly or indirectly on the environmental effects of radio frequency emissions if those facilities comply with the Commission's regulations adopted pursuant to section 704(b) concerning such emissions.

The limitations on the role and powers of the Commission under this subparagraph **relate to local land use regulations** and are not intended to limit or affect the Commission's general authority over radio telecommunications, including the authority to regulate the construction, modification and operation of radio facilities.

The conferees intend that the court to which a party appeals a decision under section 332(c)(7)(B)(v) may be the Federal district court in which the facilities are located or a State court of competent jurisdiction, at the option of the party making the appeal, and that the courts act expeditiously in deciding such cases. The term ''final action'' of that new subparagraph means final administrative action at the State or local government level so that a party can commence action under the subparagraph rather than waiting for the exhaustion of any independent State court remedy otherwise required.

With respect to the availability of Federal property for the use of wireless telecommunications infrastructure sites under section 704(c), the conferees generally adopt the House provisions, but substitute the President or his designee for the Commission.

It should be noted that the provisions relating to telecommunications facilities are not limited to commercial mobile radio licensees, but also will include other Commission licensed wireless common carriers such as point to point microwave in the extremely high frequency portion of the electromagnetic spectrum which rely on line of sight for transmitting communication services.

Shot Clocks and Batched Applications

The Order created four new shot clocks:

1. Collocation of small wireless facilities: Local government has 60 days to act upon to an application
2. Collocation of facilities other than small wireless facilities: 90 days.
3. Construction of new small wireless facilities: 90 days.
4. Construction of new facilities other than small wireless facilities: 150 days.

The order also provided for the resetting or pausing of the shot clock when a local government determines that an application is incomplete. If a municipality determines that an application is materially incomplete within ten day of filing and notifies the applicant of the deficiencies, the shot clock resets when the completed application is filed. In order to prevent last minute "pausing" of the shot clock by local governments, an incompleteness determination must be made by the 30th day after an application is filed, and within 10 days after resubmission if a re-submitted application is still incomplete.

The Order's shot clock requirements are not in compliance with the Federal intent. The CA state shot clock is 150 days.
" Under subsection (c)(7)(B)(ii), decisions are to be rendered in a reasonable period of time, taking into account the nature and scope of each request. If a request for placement of a personal wireless service facility involves a zoning variance or a public hearing or comment process, the time period for rendering a decision will be the usual period under such circumstances. It is not the intent of this provision to give preferential treatment to the personal wireless service industry in the processing of requests, or to subject their requests to any but the generally applicable time frames for zoning decision."

The shot clock deadlines have no direct legal effect. If an application is not acted on within the deadline, nothing happens unless a carrier either commences a formal complaint proceeding at the FCC or files a case in state or federal court. In either case, the carrier would have to demonstrate that the failure to act on the application amounts to an "effective prohibition" on wireless service under Section 253 or 332. The Order recognizes that the shot clock is only a presumption, and that local governments have the ability to demonstrate to a court that the delay is reasonable under the circumstances. If a court finds that a shot clock violation is an effective prohibition, it will most likely order the local government simply to make a decision by a specific date in the near future; a court is very unlikely to order a local government to grant a specific application.

Batched Applications are not a requirement under the FCC Order. In the discussion of batched applications, the Order makes clear that the applications can be either batched or individual:

> *IV. THIRD REPORT AND ORDER>103.> 2. Batched Applications for Small Wireless Facilities>113.* Given the way in which Small Wireless Facilities are likely to be deployed, in large numbers as part of a system meant to cover a particular area, we anticipate that some applicants will submit "batched" applications: multiple separate applications filed at the same time, each for one or more sites or a single application covering multiple sites. We define either scenario as "batching" for the purpose of our discussion here....Accordingly, when applications to deploy Small Wireless Facilities are filed in batches, the shot clock that applies to the batch is the same one that would apply had the applicant submitted individual applications. Should an applicant file a single application for a batch that includes both collocated and new construction of Small

Wireless Facilities, the longer 90-day shot clock will apply, to ensure that the siting authority has adequate time to review the new construction sites.

The FCC acknowledged that batched applications could strain local governments' resources and potentially justify a failure to meet shot clock deadlines. The FCC noted that under its "approach, in extraordinary cases, a siting authority, as discussed below, can rebut the presumption of reasonableness of the applicable shot clock period where a batch application causes legitimate overload on the siting authority's resources. Thus, contrary to some localities' arguments, our approach provides for a certain degree of flexibility to account for exceptional circumstances." The siting authority then will have an opportunity to rebut the presumption of effective prohibition by demonstrating that the failure to act was reasonable under the circumstances and, therefore, did not materially limit or inhibit the applicant from introducing new services or improving existing services.

However, the Order continues to state: "In addition, consistent with, and for the same reasons as our conclusion below that Section 332 does not permit states and localities to prohibit applicants from requesting multiple types of approvals simultaneously, we find that Section 332(c)(7)(B)(ii) similarly does not allow states and localities to refuse to accept batches of applications to deploy Small Wireless Facilities. Order, ¶¶ 115

The FCC is misinterpreting Congress' intent when it concludes that Section 332 does not permit states and localities to prohibit applicants from requesting multiple types of approvals simultaneously and when they conclude that Section 332(c)(7)(B)(ii) does not allow states and localities to refuse to accept batches of applications to deploy Small Wireless Facilities. Within the legally binding parameters of the TAC 1996, a regulation should not be seen as "materially inhibiting" any carrier's ability to offer its services, so long as a reasonable number of potential wireless facility locations would be available under the objective criteria. The FCC is using a wrong definition of effective prohibition and is a violation of the 1996 Telecommunications Act of 1996, Sections 253A or 332C7. The local government's action must directly prohibit. The FCC did not apply an actual prohibition standard in adopting these rules.

Under current Federal Law, the 1996 Telecommunications Act of 1996, Sections 253A or 332C7, a local government could require individual applications rather than batched, and would be fulfilling its duty to:

> *… act on any request for authorization to **place, construct, or modify** personal wireless service facilities within a reasonable period of time after the request is duly filed with such government or instrumentality, taking into account the nature and scope of such request.*

Conditional Use Zoning Permit Requirement for Small Cell Wireless Facilities

Conditional Use Permits are not prohibited, and Administrative or Ministerial or Instant Approval are not required under the Order.

IV. THIRD REPORT AND ORDER> 4. When Shot Clocks Start and Incomplete Applications >144. "As noted above, multiple authorizations may be required before a deployment is allowed to move forward. For instance, a locality may require a zoning permit, a building permit, an electrical permit, a road closure permit, and an architectural or engineering permit for an applicant to place, construct, or modify its proposed personal wireless service facilities. All of these permits are subject to Section 332's requirement to act within a reasonable period of time, and thus all are subject to the shot clocks we adopt or codify here.

IV. THIRD REPORT AND ORDER> Subpart U—State and Local Government Regulation of the Placement, Construction, and Modification of Personal Wireless Service Facilities > § 1.6002 Definitions. (f) "Authorization means any approval that a siting authority must issue under applicable law prior to the deployment of personal wireless service facilities, including, but not limited to, zoning approval and building permit.

Spacing Between Small Wireless Facilities

The Order considers spacing requirements to be a subset of aesthetics requirements, and thus subject to same standard. The Order gives no guidance on what might be a reasonable spacing distance. Nevada City's Ordinance shall require: Each small cell must be at least **one thousand five hundred feet away** from the nearest small cell facility.

Acceptable Zoning for Small Cells

Legal argument regarding siting:

United States Supreme Court (2005)
CITY OF RANCHO PALOS VERDES et al. v. ABRAMS (2005) No. 03-1601
Argued: January 19, 2005 | Decided: March 22, 2005

> **"Congress initially considered a single national solution**, namely a Federal Communications Commission wireless tower siting policy that would pre-empt state and local authority. *Ibid.;* see also H. R. Conf. Rep. No. 104-458, p. 207 (1996). But **Congress ultimately rejected the national approach and substituted a system based on** cooperative federalism. *Id.*, at 207-208. View this Conference Report for the 1996 Telecommunications Act.

State and local authorities would remain free to make siting decisions. They would do so, however, **subject to minimum federal standards** [**just** "placement, construction and modification of personal wireless facilities" — both substantive and procedural — as well as federal judicial review.

The Nevada City Telecommunication Ordinance Public Working Group is not suggesting that the ordinance include a written "prohibition" to facilities in the PROW within residential zones as that would not meet compliance. However, the prohibition does apply to facilities

on public and private properties within residential zones. The City can regulate the construction, modification and operation of facilities in the PROW in residential zones for reasons of preserving the quiet enjoyment of streets, and can do so through a CUP process.

As the Court of Appeal noted (**T-Mobile West, supra, 3 Cal.App.5th at p. 351)**, the word " 'incommode' " means " 'to give inconvenience or distress to: disturb**.' " (T-Mobile West, supra, 3 Cal.App.5th at p. 351, citing Merriam-Webster Online Dict., available at http://www.merriam-webster.com/dictionary/incommode [as of April 3, 2019].) The Court of Appeal also quoted the definition of "incommode" from the 1828 version of Webster's Dictionary. Under that definition, "incommode" means " '**[t]o give inconvenience to; to give trouble to; to disturb or molest in the quiet enjoyment of something, or in the facility of acquisition**.' " (T-Mobile West, supra, 3 Cal.App.5th at p. 351, citing Webster's Dict. 1828—online ed., available at <http://www.webstersdictionary1828.com/Dictionary/incommod e> [as of April 3, 2019].)

> The ruling: . . . ***the City has inherent local police power to determine the appropriate uses of land within its jurisdiction****. That power includes the authority to establish aesthetic conditions for land use . . . We also disagree with plaintiffs' contention that section 7901's incommode clause limits their right to construct [telephone] lines only if the installed lines and equipment would obstruct the path of travel. Contrary to plaintiffs' argument, the incommode clause need not be read so narrowly.*

For our purposes, it is sufficient to state that the meaning of incommode has not changed meaningfully since section 7901's enactment. Obstructing the path of travel is one way that telephone lines could disturb or give inconvenience to public road use. **But travel is not the sole use of public roads; other uses may be incommoded beyond the obstruction of travel**. (T-Mobile West, at pp. 355-356.) For example, lines or equipment might:

- generate **noise**,
- **cause negative health consequences**, or
- create **safety** concerns.

All these impacts could disturb public road use, or disturb its quiet enjoyment.

Localities can police the Quiet Enjoyment of Streets. Unfettered effective radiated power results in too much electromagnetic noise on our streets.

In order to preserve the quiet enjoyment of streets, a locality can pass an ordinance that limits the Effective Radiated Power (ERP) of Wireless Telecommunications Facilities (WTFs), using simple language, like the following:

"For any Close Proximity Microwave Radiation Antennas (CPMRA) Wireless Telecommunications Facility (WTF) that is

- installed in the public rights-of-way, or
- attached to any building, or
- has antennas installed at a height that is lower than 100 feet off the ground,

. . . the applicant **must** install **only** antennas, radios and other supporting equipment that **have no chance** of exceeding a total of **0.1 Watt of effective radiated power** from the face of the antenna shroud."

A cap of **0.1 Watt of ERP** for each qualifying CPMRA provides four main benefits:

1. Provides coverage for **Telecommunications service** for about 1/2 mile from the source antenna (more than **double** the distance of the industry-claimed need of 1,000 feet down the block)
2. **Does not effectively prohibit Telecommunications service, making this regulation legally defensible to wireless industry challenge**
3. Like City-regulated "speed limits," the ordinance can protect the quiet enjoyment of streets (part of the any city's police powers over **aesthetics**).
4. Complies with all FCC RF-EMR exposure guidelines.

Requiring Effective Radiated Power Limits

Definitions:

Altitude: the angle up or down from the horizon — a typical 48" tall small Wireless Telecommunications Facility antenna sprays wireless signal about 15° up and sprays wireless signal about 15° down from a horizontal plane located at the mid-point of the vertically-oriented antenna.

Antenna Gain — the ratio, usually expressed in decibels, of the power required at the input of a loss-free reference antenna to the power supplied to the input of the given antenna to produce, in a given direction, the same field strength or the same power density at the same distance. When not specified otherwise, the gain refers to the direction of maximum radiation. Gain may be considered for a specified polarization. Gain may be referenced to an isotropic antenna (dBi) or a half-wave dipole (dBd) antenna.

Antenna theory often starts with an isotropic antenna: an antenna that propagates in spherical shape from a point source. "Small Cell Antennas," in practice, are often a collection of vertically-oriented antennas, hidden behind an antenna shroud that is typically made of fiberglass to allow wireless signals to flow freely.

Azimuth: the angle formed between a reference direction and a line from the observer to a point of interest projected on the same plane as the reference direction orthogonal to the zenith.

Effective Radiated Power (ERP) — the product of the power supplied to the antenna and the antenna gain in a given direction relative to a half-wave dipole antenna.

A smart, effective, and legally incontestable local Municipal Wireless Code can and should limit the **Effective Radiated Power** which is:

Maximum Input Power (in Watts) × **Antenna-Gain** (a unitless fraction) =
Maximum Effective Radiated Power (in Watts ERP).

How can the City limit the Effective Radiated Power?

An Effective Radiated Power Limit of 0.1 Watts for all antennas within, and for all frequencies transmitted from, a Close Proximity Microwave Radiation Antenna Wireless Telecommunications Facilities shroud (a.k.a small cell) can be enforced 24/7 by a $5.00 Fuse that is under a locality's lock-and-key and placed on every CPMRA-WTF installation.

Localities can use their local police powers over the public rights-of-way to **preserve the quiet enjoyment of streets** by requiring two additional boxes on every CPMRA-WTF installation:

1. **A Fuse Box:** this gives control — and revenue (via policing fees) back to the locality (City or County)
2. **A Fiber Optic Sharing Box:** this ensures public benefit from fiber optic installations in the public rights-of-way. Sending Big Data (for video/music streaming, gaming or Internet) directly to homes via Wireline Fiber Optic cables and copper which uses **much less energy than via Wireless**. Private wireless will not be able to use of fiber optic cables in the public rights-of-way for their sole benefit. **The fiber optic cables, instead can be shared with the residents, as a condition for gaining access to the public rights-of-way. This is a fair rule that can apply to all Wireless providers in a non-discriminatory way.**

Localities can also **levy fines for ERP violations and set up a three-strikes-and-your-out program as a revenue-generating way** to police wireless carriers.

Regarding Wireless Routers

Review: FCC §15.223 Operation in the band 1.705-10 MHz.

(a) The field strength of any emission within the band 1.705-10.0 MHz **shall not exceed 100 microvolts/meter** (0.00003 μW/m²) at a distance of 30 meters (98.5 feet).

Review: FCC ID: LZKM900D1 **From a Class B Approval**

- **Application:** Data Transceiver **Maximum output power**: **100 mW (0.1 Watt)**
- **Equipment Class:** DSS – Part 15 Spread Spectrum Transmitter

Review: §15.247 Operation within the following Wi-Fi Frequency bands

- 902-928 MHz,
- 2400-2483.5 MHz, and
- 5725-5850 MHz**.**

(a) Operation under the provisions of this Section is limited to

- frequency hopping intentional radiators
- digitally modulated intentional radiators

. . . that comply with the following provisions:

From Wikipedia: **Frequency-hopping spread spectrum** (**FHSS**) is a method of transmitting radio signals by rapidly changing the carrier frequency among many distinct frequencies occupying a large

spectral band. The changes are controlled by a code known to both transmitter and receiver. FHSS is used to avoid interference, to prevent eavesdropping, and to enable code-division multiple access (CDMA) communications.

- Since the FCC amended rules to allow FHSS systems in the unregulated 2.4 GHz band, many consumer devices in that band have employed various FHSS modes.
- FCC CFR 47 part 15.247 covers the regulations for 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands, and the requirements for frequency hopping
- Some walkie-talkies that employ FHSS technology have been developed for unlicensed use on the 900 MHz band.
- FHSS technology is also used in many hobby radio-controlled transmitters and receivers used for model cars, airplanes, and drones.
- **The transmitter will use all the channels in a fixed period of time**. The receiver can then find the transmitter by picking a random channel and listening for valid data on that channel. The transmitter's data is identified by a special sequence of data that is unlikely to occur over the segment of data for this channel.
- **FCC part 15** on unlicensed spread spectrum systems in the 902–928 MHz and 2.4 GHz bands permits **more power than is allowed for non-spread-spectrum systems**. **Both FHSS and direct-sequence spread-spectrum (DSSS) systems can transmit at 1 Watt**.

The FCC also prescribes a minimum number of frequency channels and a maximum dwell time for each channel:

Frequencies	**Channels**	**Dwell Time**	**Max Total Transmit Power**
902–928 MHz	50 or more	0.4 sec. in 10-20 sec. period	**1 Watt** for 50+ channels; **0.25 Watt** for 25-49 channels
2400-2483.5 MHz	15 or more	0.4 sec. in 0.4 sec. period × number of hopping channels used	**1 Watt** for 75+ channels; **0.125 Watt** for <75 channels
5725-5850 MHz	75 or more	0.4 sec. in 30 sec. period	**1 Watt** for 75+ channels

Based on the use of antennas with directional gains that do not exceed 6 dBi

A glance at today's Router Ranker shows products using four MIMO streams dominating the top ranker positions. This isn't because they have more power, because **all products must obey transmit power limits**, **which include effective gains due to antenna design and even beamforming.**

- The reason for the higher ranking of four stream products is the increased transmit spatial multiplexing gain and receive diversity gain provided by using more MIMO streams. A four-

stream product wireless router provides higher throughput at lower signal levels because it improves effective range, i.e. the area where you get throughput you can actually use.

- Cramming too many nodes in too small a space may result in degraded performance due to co-channel interference. More is not always better in the world of Wi-Fi.
- It **is illegal to mount Wi-Fi routers outside, like the Nighthawk Wi-Fi router (see image below) because it would cause interference**. It then logically follows that 100 milliWatts (0.1 Watt) of Effective Radiated Power is more than sufficient — in fact, sufficient to provide telecommunications service in a ½-mile radius.

FCC Office of Engineering & Technology Bulletin No. 62: **Digital devices fall into two categories — Class A and Class B**

- **Class A** digital devices are ones that are marketed exclusively for use in business, industrial and commercial environments.
- **Class B** digital devices are ones that are marketed for use anywhere, including residential environments.

The technical standards for Class B equipment are stricter than those for Class A equipment because the Class B equipment may be located closer to radios, TVs, and other receivers that tend to be susceptible to interference. The Class B technical standards are designed to protect against interference being caused to a receiver located about 10 meters away (around 33 feet).

Q: What is the difference between a Class A and Class B digital device? If a digital device will be sold to anyone who is likely to use it in a residential environment then it is a Class B digital device. When determining whether a particular device should be classified as Class A or Class B, the Commission normally considers the following three questions, in this order:

The FCC rules are contained in Title 47 of the Code of Federal Regulations (47 CFR), Part 2 and Part 15 are applicable to computers and other digital devices. Digital devices that connect to the public switched telephone network are subject to Part 68 registration requirements.

RF channel	Auto for 2.4GHz, CH 44 for WW SKU and CH 153 for North America SKU
Operating mode	Up to 800 Mbps at 2.4 GHz, 1733 Mbps at 5 GHz

Power adapter	• North America: 100-240V, 50/60 Hz input • UK, Australia: 100-240V, 50/60 Hz, input • Europe: 100-240V, 50/60 Hz input • All regions (output): 12V/3.5A DC output
Dimensions	11.22 x 7.26 x 1.97 in. (285 x 184.5 x 50 mm)
Weight	1.65 lb (750 g)

Electromagnetic emissions	FCC Part 15 Class B EN 55 022 (CISPR 22), Class B C-Tick N10947

Data encoding standards	• IEEE® 802.11 b/g/n 2.4 GHz–256 QAM support • IEEE® 802.11 a/n/ac 5.0 GHz
Maximum computers per WiFi network	Limited by the amount of WiFi network traffic generated by each node (typically 50–70 nodes).
Operating frequency range	AC2600 WiFi[3] • 800 Mbps @2.4GHz–256 QAM • 1733 Mbps @5 GHz 11ac
802.11 security	WPA2-PSK and WPA/WPA2
FCC Channels	• **Band 1**. 36, 40, 44, and 48 • **Band 2 (supports DFS)**. 52, 56, 60, and 64 • **Band 3 (supports DFS)**. 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, and 140 • **Band 4**. 149,153,157, and 161

§15.15 **General technical requirements.**

(a) An intentional or unintentional radiator shall be constructed in accordance with good engineering design and manufacturing practice. Emanations from the device shall be suppressed as much as practicable, but in no case shall the emanations exceed the levels specified in these rules.

(b) Except as follows, an intentional or unintentional radiator must be constructed such that the **adjustments of any control that is readily accessible by or intended to be accessible to the user will not cause operation of the device in violation of the regulations**. Access BPL equipment shall comply

with the applicable standards at the control adjustment that is employed. The measurement report used in support of an application for Certification and the user instructions for Access BPL equipment shall clearly specify the user-or installer-control settings that are required for conformance with these regulations.

(c) Parties responsible for equipment compliance should note that the limits specified in this part will not prevent harmful interference under all circumstances. Since the operators of part 15 devices are required to cease operation should harmful interference occur to authorized users of the radio frequency spectrum, the **parties responsible for equipment compliance are encouraged to employ the minimum field strength** necessary for communications, to provide greater attenuation of unwanted emissions than required by these regulations, and to advise the user as to how to resolve harmful interference problems (for example, see §15.105(b))

§15.209 **Radiated emission limits; general requirements.**

(a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Using the PowerWatch Calculator here:

Frequency (MHz)	Field strength (µV/m)	Measurement distance (meters)	Volts per meter (V/m)	Millionths of a volt per meter (µV/m)	Millionths of Watt per square meter (µW/m²)
			61.4	61,400,000	10 ,000,000
			6.14	6,140,000	100,000
216 to 960	200	3	0.614	614,000	1,000
			0.0614	61,400	10
Above 960	500	3	0.00614	6,140	0.1
			0.000614	614	0.001
			0.000500	500	0.00066
			0.000500	200	0.00011

(e) The provisions in §15.31, §15.33, and §15.35 for measuring emissions at distances other than the distances specified in the above table, determining the frequency range over which radiated emissions are to be measured, and limiting peak emissions apply to all devices operated under this part.

§15.33 **Frequency range of radiated measurements.**

(a) For an intentional radiator, the spectrum shall be investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to at least the frequency shown in this paragraph:

(1) If the intentional radiator operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

(2) If the intentional radiator operates at or above 10 GHz and below 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 100 GHz, whichever is lower.

(3) If the intentional radiator operates at or above 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 200 GHz, whichever is lower, unless specified otherwise elsewhere in the rules.

(4) If the intentional radiator operates at or above 95 GHz: To the third harmonic of the highest fundamental frequency or to 750 GHz, whichever is lower, unless specified otherwise elsewhere in the rules.

(5) If the intentional radiator contains a digital device, regardless of whether this digital device controls the functions of the intentional radiator or the digital device is used for additional control or function purposes other than to enable the operation of the intentional radiator, the frequency range shall be investigated up to the range specified in paragraphs (a)(1) through (4) of this section or the range applicable to the digital device, as shown in paragraph (b)(1) of this section, whichever is the higher frequency range of investigation.

§15.35 **Measurement detector functions and bandwidths.**

The conducted and radiated emission limits shown in this part are based on the following, unless otherwise specified in this part:

(a) On any frequency or frequencies below or equal to 1000 MHz, the limits shown are based on measuring equipment employing a CISPR quasi-peak detector function and related measurement bandwidths, unless otherwise specified. The specifications for the measuring instrumentation using the CISPR quasi-peak detector can be found in ANSI C63.4-2014, clause 4 (incorporated by reference, see §15.38). As an alternative to CISPR quasi-peak measurements, the responsible party, at its option, may demonstrate compliance with the emission limits using measuring equipment employing a peak detector function as long at the same bandwidth as indicated for CISPR quasi-peak measurements are employed.

(b) Unless otherwise specified, on any frequency or frequencies above 1000 MHz, the radiated emission limits are based on the use of measurement instrumentation employing an average detector function. Unless otherwise specified, measurements above 1000 MHz shall be performed using a minimum resolution bandwidth of 1 MHz. When average radiated emission measurements are specified in this part, including average emission measurements below 1000 MHz, there also is a limit on the peak level of the radio frequency emissions. Unless otherwise specified, e.g., see §§15.250, 15.252, 15.253(d), 15.255, 15.256, and 15.509 through 15.519, the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device, e.g., the total peak power level. Note that the use of a pulse desensitization correction factor may be needed to determine the total peak emission level. The instruction manual or application note for the measurement instrument should be consulted for determining pulse desensitization factors, as necessary.

(c) Unless otherwise specified, e.g., §§15.255(b), and 15.256(l)(5), when the radiated emission limits are expressed in terms of the average value of the emission, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value. The exact method of calculating the average field strength shall be submitted with any application for certification or shall be retained in the measurement data file for equipment subject to Supplier's Declaration of Conformity.

Example of Petaluma's Current Ordinance
Language regarding Non-Ionizing Electromagnetic Radiation (NIER)

Example Ordinance Language:

Definition: NIER is non-ionizing electromagnetic radiation

Telecommunications facilities — Minimum application requirements.

The planning director shall establish and maintain a list of information that must accompany every application for the installation of a telecommunications facility. Said information may include, but shall not be limited to, completed supplemental project information forms, a specific maximum requested gross cross-sectional area, or silhouette, of the facility; service area maps, network maps, alternative site analysis, visual impact demonstrations including mock-ups and/or photomontages, visual impact analysis, **NIER (non-ionizing electromagnetic radiation) exposure studies**, title reports identifying legal access, security considerations, lists of other nearby telecommunications facilities known to the city, master plan for all related facilities within the city limits of Petaluma and within one-quarter mile therefrom; and facility design alternatives to the proposal and deposits for peer review, if deemed necessary by the director. The planning director may release an applicant from having to provide one or more of the pieces of information on this list upon a finding that in the specific case involved said information is not necessary to process or make a decision on the application being submitted

Telecommunications facilities — NIER exposure.

A. No telecommunication facility shall be sited or operated in such a manner that it poses, either by itself or in combination with other such facilities, a potential threat to public health. To that end no telecommunication facility or combination of facilities shall produce at any time power densities in any inhabited area as this term is defined in Section XXXXXX that exceed the ANSI (American National Standards Institute) C95.l-1992 standard for human exposure or any more restrictive standard subsequently adopted or promulgated by the city, county, the state of California, or the federal government.

B. Initial compliance with this requirement shall be demonstrated for any facility within five hundred feet of residential uses or sensitive receptors such as schools, churches, hospitals, etc. and all broadcast radio and television facilities, **regardless of adjacent land uses**, **through submission, at the time of application for the necessary permit or entitlement**, of NIER (Nonionizing Electromagnetic Radiation calculations) specifying NIER levels in the inhabited area where the levels produced are projected to be highest. If these calculated NIER levels exceed

eighty percent of the NIER standard established by this section, the applicant shall hire a qualified electrical engineer licensed by the state of California to measure NIER levels at said location after the facility is in operation. A report of these measurements and his/her findings with respect to compliance with the established NIER standard shall be submitted to the planning director. Said facility shall not commence normal operations until it complies with, or has been modified, to comply with this standard. Proof of said compliance shall be a certification provided by the engineer who prepared the original report. In order to assure the objectivity of the analysis, the city may require, at the applicant's expense, independent verification of the results of the analysis.

C. Every telecommunication facility within five hundred feet of an inhabited area and all broadcast radio and television facilities shall demonstrate continued compliance with the NIER standard established by this section. Every five years a report listing each transmitter and antenna present at the facility and the effective radiated power radiated shall be submitted to the planning director. If either the equipment or effective radiated power has changed, calculations specifying NIER levels in the inhabited areas where said levels are projected to be highest shall be prepared. NIER calculations shall also be prepared every time the adopted NIER standard changes. If calculated levels in either of these cases exceed eighty percent of the standard established by this section, the operator of the facility shall hire a qualified electrical engineer licensed by the state of California to measure the actual NIER levels produced. A report of these calculations, required measurements, if any, and the author's/engineer's findings with respect to compliance with the current NIER standard shall be submitted to the planning director within five years of facility approval and every five years thereafter. In the case of a change in the standard, the required report shall be submitted within ninety days of the date said change becomes effective.

D. Failure to supply the required reports or to remain in continued compliance with the NIER standard established by this section shall be grounds for revocation of the use permit or other entitlement.

Minor facilities — Basic requirements.

Minor facilities as defined in Section XXXX of this chapter may be installed, erected, maintained and/or operated in any commercial or industrial zoning district where such antennas are permitted under this title, upon the issuance of a minor conditional use permit, so long as all the following conditions are met:

A. The minor antenna use involved is accessory to the primary use of the property which is not a telecommunications facility.

B. **The combined effective radiated power radiated by all the antenna present on the parcel is less than one thousand five hundred watts.**

C. **The combined NIER levels produced by all the antennas present on the parcel do not exceed the NIER standard established in Section XXXXX of this chapter.**

D. **The antenna is not situated between the primary building on the parcel and any public or private street adjoining the parcel, so as to create a negative visual impact.**

E. **The antenna is located outside all yard and street setbacks specified in the zoning district in which the antenna is to be located and no closer than twenty feet to any property line.**

F. None of the guy wires employed are anchored within the area in front of the primary structure on the parcel.

G. **No portion of the antenna array extends beyond the property lines or into the area in front of the primary building on the parcel, so as to create a negative visual impact.**

H. At least ten feet of horizontal clearance exists between the antenna and any power lines, unless more clearance is required to meet CPUC standards.

I. All towers, masts and booms are made of a noncombustible material and all hardware such as brackets, turnbuckles, clips, and similar type equipment subject to rust or corrosion has been protected either by galvanizing or sheradizing after forming.

J. The materials employed are not unnecessarily bright, shiny or reflective and are of a color and type that blends with the surroundings to the greatest extent possible.

K. The installation is in compliance with the manufacturer's structural specifications and the requirements of the Uniform Building Code including Section 507.

L. The height of the facility shall include the height of any structure upon which it is placed, unless otherwise defined within this chapter.

M. No more than two satellite dishes are allowed on the parcel, one of which may be over three feet in diameter, but no larger than eight feet in diameter, with adequate screening, at the discretion of the planning director.

O. Any ground mounted satellite dish with a diameter greater than four feet that is situated less than five times its actual diameter from adjoining property lines has screening treatments located along the antenna's non-reception window axes and low-level landscape treatments along its reception window axes.

P. Any roof mounted panel antenna with a face area greater than three and one-half square feet shall be located so as to be effectively unnoticeable.

Q. Sufficient anti-climbing measures have been incorporated into the facility, as needed, to reduce potential for trespass and injury.

R**. The facility is located more than 500 feet *(OR 1500 FEET as needed in Nevada City)* from any residential dwelling unit, unless recognized as an exempt facility as set forth in Section xxxxx.**

S. No trees larger than twenty inches in diameter measured at four and one-half feet high on the tree would have to be removed.

T. **The site has an average cross slope of ten percent or less.**

V. **All utility lines to the facility from public or private streets shall be underground.**

W. If located within a recognized historic district, or on a structure recognized as a historic landmark, that adequate screening has been provided.

X. The general criteria set forth in this chapter are met.