

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)
)
Realignment of the) RM-11738
896-901/935-940 MHz Band)
to Create a Private Enterprise)
Broadband Allocation)

To: The Commission

**REPLY COMMENTS
OF THE
ENTERPRISE WIRELESS ALLIANCE
AND
PACIFIC DATAVISION, INC.**

Respectfully submitted,

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TABLE OF CONTENTS

SUMMARY ii

I. ISSUES..... 2

A. Critical Need for PEBB Broadband Allocation..... 2

B. Procedural Issue 6

C. Technical Issues 8

 1. Adjacent Narrowband and Broadband Allocations 8

 2. Adjacent Broadband and NPCS Allocations 10

 3. Comparable Facilities/“Channel Compression” 12

D. Spectrum Issues 13

E. Business Issues 16

 1. Build-to-Suit 16

 2. Spectrum Management/Coordination 17

 3. 900 MHz Freeze 18

II. CONCLUSION 19

SCHEDULE I - 900 MHz Call Signs

SCHEDULE II - 900 MHz Spectrum Position

SUMMARY

The Comments submitted in response to the Petition for Rulemaking filed by the Enterprise Wireless Alliance (“EWA”) and Pacific DataVision, Inc. (“PDV”) are virtually unanimous in confirming that there is a compelling need to address Critical Infrastructure Industry (“CII”) and other Private Enterprise (“PE”) broadband demand. Organizations such as API, UTC, NRTC, and Motorola, as well as users, including Duke Energy, NextEra Energy, Oncor Electric Delivery, Northeast Utilities, and Anthem Propane Exchange, all agree with Orlando Utilities Commission that commercial broadband networks, while appropriate for certain applications, “do not provide the security, reliability, coverage, hardening, or features such as priority access required by our operations.” In light of these requirements, many argue that “greenfield” broadband spectrum allocated exclusively for CII and other PE users would be optimal. EWA and PDV agree, but in the absence of such an allocation their proposal to realign the 900 MHz band to create a 3/3 MHz broadband segment for PE/CII (“PEBB”) use with an obligation to offer priority access while retaining a 2/2 MHz narrowband segment represents a meaningful option for this critical part of the telecommunications user community.

Having reviewed the issues raised in the Comments on the Petition, EWA and PDV offer the following responses:

- The regulatory and technical issues in the Petition are not novel. They can and should be addressed in a NPRM, not an NOI, which would only serve to further delay a PE/CII broadband option. The Commission has ample experience with rule changes that permit the deployment of more advanced, efficient technologies in existing bands and is well

versed in broadband technology below 5 GHz. It is fully capable of resolving the issues under consideration in this proceeding without reverting to an NOI.

- The Commission recently determined that deployment of broadband technology on 800 MHz ESMR spectrum should be permitted, and interference to adjacent 800 MHz narrowband systems was not expected, provided that ESMR systems satisfy the existing OOBE and co-channel separation rules. While EWA and PDV agree entirely that the continued interference-free operation of narrowband 900 MHz systems is essential, they are confident that the FCC will reach the same conclusion regarding the compatibility of broadband and narrowband operations at 900 MHz, even if compliance with the OOBE standard requires the broadband operator to add filters to its infrastructure and subscriber equipment.
- EWA and PDV are working with Sensus and its customers to develop an appropriate response to potential interference from broadband operations to highly sensitive Sensus devices operating on the adjacent NPCS spectrum. There is an ongoing collaborative effort to assess various means of addressing this issue, which the parties expect to result in a joint recommendation to the FCC.
- As with numerous spectrum repurposings authorized by the FCC, the PEBB licensee in each market will be obligated to provide comparable facilities or an acceptable alternative arrangement for all 900 MHz incumbents that need to be relocated. Comparability has been defined by the Commission in other bands, but if further refinements are appropriate, they can be incorporated in the 900 MHz rules. If comparability cannot be achieved without additional equipment or sites, the additional cost would be borne by the PEBB licensee.

- PDV's 900 MHz spectrum position acquired from Sprint consists primarily of geographic licenses purchased by Sprint at auction, plus additional spectrum that Sprint purchased from incumbent 900 MHz licensees. This spectrum was heavily used for many years in Sprint's iDEN network, is not available for narrowband licensing by other entities, and is the foundation on which a broadband option that will be designed and deployed as required by PE/CII entities rests.
- The PEBB licensee will be obligated and motivated to engage in good faith negotiations that will allow the spectrum to be deployed for PE/CII use. Both FCC regulations and contractual obligations will protect the interest of PE/CII entities that choose to contract for build-to-suit broadband facilities.
- While a single entity must oversee the replacement frequency process to avoid instances of mutual exclusivity, it is expected that EWA would work collaboratively with API and UTC to establish the ground rules for frequency assignments and that all organizations would work with their members to confirm the appropriateness of the recommendation for individual systems.
- The Petition did not recommend a licensing freeze. It did urge the FCC to carefully review any influx of applications for 900 MHz Industrial/Business frequencies to prevent this spectrum from being licensed to parties without a legitimate business need for, and thus lacking, eligibility to operate on, those frequencies.

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The Enterprise Wireless Alliance (“EWA”) and Pacific DataVision, Inc. (“PDV”) (collectively, “Parties” or “Petitioners”), pursuant to Federal Communications Commission (“FCC” or “Commission”) Rule Section 1.405, respectfully submit their Reply Comments in the above-entitled proceeding.¹ The number of parties that filed Comments in response to the Public Notice soliciting input on the Parties’ Petition for Rulemaking² is confirmation that the proposal is of great significance to the Private Enterprise (“PE”), including the Critical Infrastructure Industry (“CII”), community. The substance of those Comments makes abundantly clear that PE, and in particular CII, entities have a compelling need for a broadband allocation dedicated to serving their particular, highly demanding requirements. It also is evident that additional

¹ Wireless Telecommunications Bureau Seeks Comment on Enterprise Wireless Alliance and Pacific DataVision, Inc. Petition for Rulemaking Regarding Realignment of 900 MHz Spectrum, *Public Notice*, RM-11738, DA 14-1723 (rel. Nov. 26, 2014) (“Public Notice”).

² Petition for Rulemaking of the Enterprise Wireless Alliance and Pacific DataVision, Inc., filed Nov. 17, 2014 (“Petition”).

information regarding the proposal and PDV's 900 MHz spectrum position is needed to address the concerns of certain incumbents both within and immediately adjacent to the upper end of the 896-901/935-940 MHz band ("900 MHz Band"). These Reply Comments will address the issues raised in the Comments, although the Commission presumably will undertake a more detailed consideration of these matters in a Notice of Proposed Rulemaking ("NPRM"). The Parties have had discussions with numerous parties, individual PE/CII entities, as well as organizations that represent them, over the last year and remain committed to making themselves available for one-on-one discussions with any interested party.

I. ISSUES

A. Critical Need for PEBB Broadband Allocation

The record is unequivocal: CII and other PE entities have a compelling, growing need for access to broadband facilities that are built to their exacting technical and operational requirements and, for CII entities, facilities that offer priority access. A "greenfield" allocation dedicated for this use would be optimal, but absent a new allocation of unencumbered broadband spectrum dedicated to CII and PE entities, the Commission and those industries must evaluate options using spectrum already allocated for PE/CII use.³ The more critical of their requirements are not met on commercial networks and are too essential to their operations to be relegated to unlicensed spectrum. This fact was confirmed by organizations that represent these users and by users themselves, even by certain incumbents whose technical or economic concerns prompted them to reject the PEBB proposal as a broadband option.

The following statements are a sampling of the comments that addressed this need:

³ The Parties, and presumably the CII community that has been tireless in its efforts to secure a broadband allocation dedicated to CII systems, would not agree with JVCKenwood USA Corporation ("JVCKenwood") that the Commission's 10-year comprehensive plan for broadband access addresses mission-critical CII broadband needs. JVCKenwood Comments at 9.

Utilities Telecom Council (“UTC”)

...there is a broadband revolution, and utilities and [CII] do need access to broadband to support their increasing communications needs in terms of capacity, coverage and reliability. (p. iii)

...CMRS does not meet utility requirements for reliability and resiliency....While utilities and CII do in fact use CMRS for some of their communications needs, these tend to be limited to applications that are not mission-critical....CMRS does not represent a suitable alternative for utility access to broadband spectrum. (p. 6)

National Rural Telecommunications Cooperative (“NRTC”)

NRTC supports the introduction of much needed broadband spectrum targeted for use by electric utilities and others in the [CII], and therefore supports *in concept* the notion of the realignment proposed by Petitioners. (p. 1) (original emphasis)

American Petroleum Institute (“API”)

API agrees with Petitioners that there is a shortage of broadband spectrum available for use by the [CII], particularly for higher speed point-to-multipoint data applications. (p. 1)

Orlando Utilities Commission (“OUC”)

While commercial carriers provide some OUC mobile workers smart phone service primarily for email and some of our other data needs, these public networks often do not provide the security, reliability, coverage, hardening, or features such as priority access required by our operations. (p. 1)

Motorola Solutions, Inc. (“Motorola Solutions”)

Motorola Solutions strongly supports the goal of advancing communications options for all business and industrial private wireless users. While it would be preferable to allocate new greenfield spectrum for private broadband systems, Motorola Solutions supports inventive solutions that would maximize the efficient use of existing allocation without causing harmful impact to incumbent services. (p. 3)

Duke Energy Corporation (“Duke Energy”)

It is recognized in the electric utility industry that currently available private wireless services offered under Part 90 and 101 of the Commission’s rules are not sufficient for the growing broadband network needs of the utilities. (p. 3)

Existing wireless broadband service providers cannot provide the consistent network availability and reliability required, especially in emergency situations. (p. 6)

Anthem Propane Exchange (“Anthem”)

...there is no dedicated broadband allocation for companies like Anthem, and...commercial networks are not designed to meet our particular needs. (p. 2)

ESP Wireless Technology Group, Inc. (“ESP”)

The broadband service provided on commercial networks is fine for many applications, but not for many of our customers’ operations that have coverage and reliability needs beyond what these consumer-oriented commercial systems offer. (p. 1)

NextEra Energy, Inc. (“NextEra”)

Existing broadband service providers cannot provide the required network services for the exclusive use by the utilities and other CII users, nor can existing commercial wireless providers provide the consistent network availability and reliability that is critical in all cases and imperative in emergency situations. (p. 8)

Westar Energy, Inc. (“Westar”)

Petitioners correctly observe that “critical infrastructure entities,” such as Westar and other electric utilities, “have broadband coverage, security, and operating needs that go beyond what is available on commercial networks and require deployment of systems designed and built to their particular, stringent standards.” (p. 4)

Northeast Utilities (“NU”)

...many critical applications are not hosted on commercial networks not only due to a lack of priority, but because such applications must be reliable, restoration must be ensured, and security must be tightly controlled. (p. 7)

Oncor Electric Delivery Company LLC (“Oncor”)

...Oncor also has *broadband* IP-enabled applications that could be well suited for the proposed “build-to-suit” 3/3 network proposed by EWA and PDV in their petition. These broadband communications are NOT served appropriately by carrier-grade networks that carry inherent risks of congestion caused by huge public demands during major disaster events, or even complete failure during major electric grid system emergencies (i.e. blackouts). (p. 4) (original emphasis)

Thus, with the exception of JVCKenwood, which, contrary to the users and user representatives above, declared that, “The combination of narrowband operations at 900 MHz...and the widespread availability of commercial broadband operations are sufficient to accommodate the communications needs of [Business/Industrial/Land Transportation] and CII entities,”⁴ the commenting parties almost universally agree that an unmet broadband demand exists today, is growing, and requires a solution other than relying on CMRS networks.⁵

UTC, while cautioning that additional information is needed and different utilities would view the proposal differently, also recognized that, “Utilities need reliable high capacity communications to an increasing extent, and the PEBB has the potential to meet that need if it is built to suit utility needs and it provides priority access for CII including during emergencies. To that extent, the PEBB represents a potential broadband solution for utilities and CII.”⁶ UTC has been vigilant in its efforts to address utility spectrum requirements and has a clear-eyed perspective on the current spectrum landscape. Along with the American Petroleum Institute (“API”), it has reminded the Commission on numerous occasions that the broadband needs of this essential segment of the American economy are not being met. In the absence of a greenfield allocation, initiating a NPRM proceeding in which the PEBB-related issues can be examined by the industry is the essential next step in addressing this critical need.

⁴ JVCKenwood Comments at 12.

⁵ The Lower Colorado River Authority (“LCRA”) stated that it did not anticipate a broadband requirement that could not be satisfied on an existing commercial system. *See* Comments at 4. It is possible that this entity’s broadband applications are not mission-critical and can be met on a CMRS network.

⁶ UTC Comments at 7-8.

B. Procedural Issue

Some commenting parties suggested that the Commission consider the 900 MHz PEBB proposal, not in the context of an NPRM, but by initiating a Notice of Inquiry (NOI).⁷ The Commission describes these two procedural vehicles as follows:

Notice of Inquiry (NOI): The FCC issues a NOI to gather facts and information on a particular subject or issue to determine if further action by the FCC is warranted. Typically, an NOI asks questions about a given topic and seeks comments from the public on that topic.

Notice of Proposed Rulemaking (NPRM): The FCC issues a NPRM to propose new rules or changes to existing rules and seek comments on the proposals.⁸

Adopting the NOI procedural path would be inconsistent with normal Commission practice, is unnecessary given FCC and industry experience with the issues raised in the Petition, and would only serve to further delay CII and PE access to this option for a dedicated broadband allocation.

NOIs have become relatively rare occurrences. More commonly, the FCC proceeds, as it has in this instance, by inviting comment on a Petition for Rulemaking itself. As indicated in the definition above, NOIs typically are used when the Commission is in the very initial stages of exploring a policy or technical matter and lacks sufficient foundational information to determine whether the matter should be pursued or to propose rules for public debate. They are used to collect the data needed before moving to an NPRM, assuming the data supports that next step. One recent example is the FCC's inquiry into the potential use of spectrum above 24 GHz for mobile operations. The NOI makes clear that the technical issues involved are in an embryonic stage, and the FCC is seeking to determine whether they are sufficiently advanced to warrant investigation at this time:

⁷ See, e.g., NU Comments at 2. As discussed below, most of the parties who urge the FCC to proceed via an NOI rather than an NPRM are concerned about the impact of the PEBB proposal on equipment manufactured by Sensus USA Inc. ("Sensus") that has been deployed in the immediately adjacent Narrowband PCS ("NPCS") band at 901-902/940-941 MHz.

⁸ <http://www.fcc.gov/guides/how-comment> (Updated: April 21, 2014).

The purposes of this proceeding include learning about the development status of enabling technologies that are essential to build mobile broadband networks in frequencies above 24 GHz, identifying mmW bands that could be suitable for the provision of so-called 5G mobile services, and exploring the technical challenges that deployment of a new generation of mobile technology will present.⁹

By contrast, the regulatory and technical issues in the Petition are not novel. The Commission has gone through multiple proceedings in which they have modified rules to permit deployment of more advanced broadband technologies. While there are variations among the regulations adopted, the issues involved such as timing, comparable facilities, and relocation obligations are well known. They can be resolved in an NPRM and do not require reversion to an NOI.

Similarly, unlike the possibility of mobile operations above 24 GHz, the technical considerations at issue in this proceeding are well within the FCC's expertise. The Commission is deeply familiar with broadband technology below 5 GHz. It also has completed a number of proceedings in which it assessed the potential impact of broadband operation on adjacent narrowband systems of varying types. This is not to say there is a pre-packaged formula that can be used to define the rules that should be applicable to the PEBB allocation. As evidenced by even the initial Comments in this proceeding, there undoubtedly will be a full vetting of all technical concerns and a thorough FCC evaluation of relevant technical factors.¹⁰ However, because the issues are ones in which the Commission already has an in-depth grounding, they can and should be resolved in the context of an NPRM.

⁹ Use of Spectrum Bands Above 24 GHz For Mobile Radio Services, GN Docket No. 14-177, *Notice of Inquiry*, 29 FCC Rcd 13020 at ¶ 14 (2014).

¹⁰ Notably, Motorola Solutions, a company with both technical expertise and extensive knowledge of PE/CII operational requirements, fully supports initiation of an NPRM and has not expressed concern that the Petition raises technical issues that should first be considered in an NOI.

C. Technical Issues

1. Adjacent Narrowband and Broadband Allocations

One concern that was expressed in a number of Comments is the potential impact of a broadband allocation on the narrowband systems that will remain in the 900 MHz band. While the Parties addressed this issue in their Comments, they fully appreciate that incumbents must have confidence that authorizing a PEBB allocation will not diminish their interference-protection rights or increase the likelihood of actual interference to their operations. Many of these narrowband systems provide mission-critical communications for CII entities. Their ongoing viability must be ensured.

The FCC certainly will need to investigate this issue fully in the NPRM, but presumably it will do so informed by analyses it has conducted when considering similar proposals. In that regard, incumbents should consider that the Commission already has concluded that the technical characteristics of broadband technology, along with existing out-of-band-emission (“OOBE”) rules, permit compatible co-existence with an immediately adjacent narrowband allocation at 800 MHz.¹¹ Less than two years ago, the FCC modified the 800 MHz rules to permit EA-based 800 MHz Specialized Mobile Radio (“SMR”) service licensees to deploy broadband technology over their contiguous aggregated channels. It did so “[a]s part of our ongoing efforts to reduce barriers to innovation and investment in new technology and to promote greater spectrum efficiency...and provide certain spectrum licensees with increased regulatory and technical flexibility to deploy advanced wireless services...”¹²

¹¹ For example, LTE technology includes a guard band that falls entirely within the LTE channel. At 900 MHz, the entirety of the 2/2 MHz narrowband allocation would be available for utilization.

¹² Improving Spectrum Efficiency for EA-based 800 MHz SMR Licensees, WT Docket No. 12-64, *Report and Order*, 27 FCC Rcd 6489 at ¶ 1 (2012) (“800 MHz Broadband Order”). This analysis is both more current and more directly comparable than the 700 MHz public safety allocation referenced in the Parties’ Comments.

In that proceeding, the FCC authorized broadband usage in the 813.5-824/858.5-869 MHz Enhanced SMR (“ESMR”) band in the Southeastern United States where Sprint Corporation (“Sprint”) and Southern Communications Services, Inc. d/b/a SouthernLINC Wireless¹³ both hold ESMR licenses and in the 817-824/862-869 MHz band in the rest of the United States. It specifically noted that the licensees would be permitted to utilize CDMA, LTE, and other advanced wireless technologies.¹⁴ The Commission determined that there was “no basis to conclude that EA-based 800 MHz SMR operations using bandwidths wider than 25 kHz must be subject to more stringent technical requirements than our rules in Part 90 currently impose...due in part to the fact that other things being equal, the use of wider channels generally spreads the available power across a much wider bandwidth than narrowband technologies....”¹⁵ Having first raised concerns about the potential impact of this rule change on public safety systems in the 800 MHz band, upon review, the Association of Public-Safety Communications Officials-International, Inc. (“APCO”) acknowledged that its request for a 1 MHz guard band between broadband and narrowband systems was not necessary.¹⁶ It should be noted that licensees in the 858-858.5 MHz band in the Atlanta area include a variety of public safety and PE licensees, all of which will continue to operate in a narrowband segment of the 800 MHz band that is immediately adjacent to an allocation authorized for broadband use.

The Commission properly noted that ESMR licensees that choose to deploy broadband technology, like all licensees, would remain subject to existing technical rules such as OOBE and

¹³ This entity is affiliated with Southern Company Services, Inc. (“Southern”) referenced later in this filing.

¹⁴ 800 MHz Broadband Order at ¶ 11.

¹⁵ *Id.* at ¶ 27.

¹⁶ *See* APCO Comments at 3, filed Apr. 13, 2012. APCO and the National Public Safety Telecommunications Council originally had expressed concern that Sprint’s broadband operations at 817-821/862-866 MHz could cause interference to public safety systems still operating at 821-824/866-869 MHz in areas where 800 MHz rebanding had not been completed. On that basis, they had suggested a guard band at 820-821/865-866 MHz, which request was withdrawn.

co-channel separation criteria, and “are strictly responsible for abating any unacceptable interference under Section 90.673 and must comply with the interference resolution procedures under Section 90.674.”¹⁷ To the extent that additional filtering is needed to comply with the FCC’s OOB rules and ensure non-interference to adjacent 900 MHz narrowband systems, the PEBB licensee would be responsible for adding filters to its broadband equipment, both infrastructure and subscriber units. However, neither the FCC nor the public safety community would have relied on prophylactic measures to address interference after the fact, had they not been satisfied with the technical conclusion that such interference was not expected to occur.¹⁸ The Petitioners believe the FCC will reach the same conclusion upon consideration of the PEBB proposal and encourage the Commission to begin that analysis as soon as possible.¹⁹

2. Adjacent Broadband and NPCS Allocations

The upper end of the Part 90 900 MHz band is immediately adjacent to the 900 MHz NPCS allocation. As detailed in several Comments, a number of utilities have deployed the Sensus FlexNet™ smart grid and automatic metering infrastructure on NPCS spectrum and are concerned about interference to those facilities from an adjacent broadband allocation.²⁰ These same entities urge the Commission to use an NOI, rather than an NPRM, to investigate potential interference between these bands.

¹⁷ 800 MHz Broadband Order at ¶ 22. The specific rules cited govern interference between cellular systems and 800 MHz licensees in response to the actual interference in a heavily interleaved band that triggered the 800 MHz rebanding process. Although the Petitioners do not believe that such protections will be necessary at 900 MHz, they would not object to adoption of similarly detailed procedures in this band.

¹⁸ If the FCC were concerned about likely interference from broadband into immediately adjacent narrowband allocations, it presumably would have included cautionary language in its Public Notices announcing the availability of the 800 MHz Guard Band (816-817/861-862 MHz) for licensing. *See, e.g.*, Public Safety and Homeland Security Bureau and Wireless Telecommunications Bureau Announce the Completion of 800 MHz Band Reconfiguration in Certain NPSPAC Regions and the Availability of Additional Sprint Vacated Channels, *Public Notice*, WT Docket No. 02-55, DA 14-1904 (rel. Dec. 30, 2014).

¹⁹ Sprint has extensive CDMA and LTE operations deployed on its ESMR spectrum, so there is real world information on which the Commission can draw if it chooses.

²⁰ *See* Comments of Sensus, Southern, NRTC, Alliant, PECO Energy Company (“PECO”).

The Petitioners agree that this issue must be resolved before the realignment proposed in the Petition is approved. As indicated in their comments and in the comments of several of the parties involved in the Sensus issue, EWA and PDV initiated discussions with Sensus, Southern and other Sensus customers promptly upon becoming aware that significant numbers of these highly sensitive devices were operating on NPCS spectrum.

The Sensus equipment and the systems designed for their use enable the devices to receive data at a very low signal strength from the transmitter, with multiple retries if the data is not received on the initial distribution.²¹ Based on ongoing discussions, the Parties do not believe that the technical issues involved are of such novelty or complexity that an NOI is needed as both the Sensus and broadband technologies are well known. The parties have had constructive exchanges of technical information and possible recommendations. The Petitioners are confident that the issues presented can be satisfactorily resolved by well-known, widely accepted technical mechanisms. One approach under consideration is to shift the PEBB allocation lower in the 900 MHz band so that it is not immediately adjacent to the NPCS spectrum. Another approach, perhaps in conjunction with the first, is the use of filters that further reduce OOB. PDV believes that Southern may already have investigated improved filtering of an LTE signal for its proposed LTE deployment in the 800 MHz band.²² The Petitioners remain optimistic that this collaborative effort will result in a joint recommendation to the FCC regarding this subject.

²¹ Typical land mobile equipment and systems, particularly those operated by CII and public safety entities, are designed to receive critical communications on the first try. They therefore have a more robust interference rejection specification and are designed to ensure a stronger signal strength in their service area.

²² See <http://s4gru.com/index.php?/topic/4655-southernlinc-selects-ericsson-cisco-for-lte-network-to-replace-iden>; <https://www.southernlinc.com/pressroom/news/2268241965-sweden--southernlinc-wireless-selects-ericsson-to-build-lte-network.aspx>.

3. Comparable Facilities/“Channel Compression”

It is axiomatic in any band realignment or repurposing that the party initiating the changes assumes responsibility for providing incumbents with comparable facilities.²³ The Petition proposed that the PEBB licensee in each market would need to demonstrate an ability to provide comparable facilities or an acceptable alternative arrangement for all incumbents before any incumbent’s system would be realigned.

Some parties have argued that the following discussion of comparability in the Petition is insufficient:²⁴

Comparability for this purpose would include ensuring that the licensee experienced no reduction in system capacity, coverage or signal strength within its coverage area. If there are instances in which providing Comparable Facilities requires additional equipment, such as antennas, combiners, or even additional sites, that cost would be borne by the PEBB licensee.²⁵

The description was a distillation of the Commission’s comparability definition for purposes of 800 MHz rebanding as set out in Rule Section 90.699. The Petitioners expect and encourage the FCC to impose the obligations in that rule – and others as appropriate, including, but not limited to, priority access negotiated by CII entities – as conditions on the PEBB authorization.

As stated in the Parties’ Comments in this proceeding, some markets will be challenging and no market can have a definitive replacement frequency analysis until more information is available about actual system deployment and the preference of incumbents to migrate to broadband is quantified. The fact that many incumbents will be moving from site-based frequencies to frequencies that are available throughout a Major Trading Area (“MTA”) will

²³ See e.g., 47 C.F.R. §§24.239, 27.1230, 90.699, 101.73(d), and 101.85.

²⁴ See e.g., API Comments at 5, NextEra Comments at 10, Westar Comments at 6.

²⁵ Petition at 16.

provide flexibility in optimizing the replacement frequency assignments, a process that will begin with the largest users in each area.

The underlying comparability concern appears to be a belief that realignment will reduce the separation between frequencies at certain sites, such that additional facilities will be needed to compensate for reduced coverage due to combiner loss and/or that ongoing increased site and maintenance costs will be incurred if additional antennas are needed. The Petitioners reiterate here that if such costs must be incurred to provide comparable facilities, they will be borne by the PEBB licensee and not by an incumbent.

This issue of channel spacing deserves thorough evaluation in the NPRM, although the FCC has recent experience with rebanding frequency assignments at 800 MHz when the pool of potential replacement frequencies was limited, particularly in the Canadian and Mexican Border Regions.²⁶ When needed for comparable facilities, Sprint provided combiners, additional or different antennas, tower-top amplifiers or other tools that allowed the use of closer-spaced frequencies. A substantial number of those systems have been reconfigured successfully. While 250 kHz separation may be preferred, advances in combiner technology and other solutions allow many systems to operate satisfactorily with frequencies separated by 150 kHz, even systems that previously had greater separation. The Petitioners recommend that the Commission address this issue specifically in the NPRM.

D. Spectrum Issues

There appears to be confusion about the amount of 900 MHz spectrum PDV acquired from Sprint. This is not surprising, since those spectrum holdings include exclusive geographic MTA licenses, site-based licenses for frequencies on which PDV is the sole licensee within a

²⁶ See Improving Public Safety Communications in the 800 MHz Band, WT Docket No. 02-55, *Second Report and Order*, 23 FCC Rcd 7605 at ¶ 19 (2008); *Fifth Report and Order*, 28 FCC Rcd 4085 at ¶¶ 81-83 (2013).

market, and site-based licenses that include frequencies shared with other licensees at distances that satisfy the separation requirements in Rule Section 90.621.

The Petition stated that PDV is licensed for an average of 240 900 MHz channels in each of the top 20 markets, as well as substantial 900 MHz spectrum outside of those markets.²⁷ The great majority of this spectrum in every market is MTA authorizations that were purchased at auction by Sprint and subsequently bought from Sprint by PDV. PDV also acquired Sprint licenses for I/B frequencies, spectrum that Sprint purchased from incumbent licensees and then converted to SMR status as permitted by the FCC. Schedule I is the list of 900 MHz call signs held by PDV. As noted on that Schedule, each YD license is an authorization for 10 channels throughout an entire MTA. The non-YD licenses can include up to six sites per call sign, with multiple channels authorized at each site. Schedule II is a pictorial description of PDV's 900 MHz spectrum position in the top 25 markets, as well as a breakdown of the non-PDV frequencies.

If a single entity – PDV – did not already hold this amount of spectrum, all of which Sprint purchased from the FCC at auction or from I/B licensees, with each transaction a matter of public record at the FCC, there would be no opportunity to create a PE/CII-dedicated broadband allocation in this band. It simply is inaccurate to suggest, as some parties have, that denial of the Petition will mean that 3 MHz of paired 900 MHz spectrum will be available for narrowband

²⁷ Petition at 5. Industrial Wireless Technologies, Inc. (“IWTI”) holds a significant position in two of the top 20 markets – Boston and Miami – and throughout much of New England and South Florida. PDV has understood from the outset that it would need to reach an agreement with IWTI in those markets or PDV's average holdings would be 236 channels. IWTI and principals of PDV have had successful negotiations in the past and, based on discussions regarding the PEBB proposal, a mutually agreeable arrangement is expected that will allow for deployment of broadband capability in both these markets. IWTI's owner operates cellular broadband systems in other parts of the country and recognizes the benefits of migrating to this more advanced technology. Excluding those two markets would leave PDV with an average of 247 channels in the remaining 18 markets.

licensing.²⁸ It already is licensed and has been deployed extensively for decades.²⁹ The issue is whether there is a public interest benefit in allowing it to be converted to more efficient broadband use to address a specific need that all knowledgeable commenting parties agree is not being met. If so, and provided that incumbent systems receive all the protections afforded in other spectrum repurposing processes, the Commission clearly has authority to adopt the band realignment proposed.

Because the 240-channel figure is an average, clearly there are some markets where realignment will be more challenging than others. The scope of the challenge cannot be known fully until the number of operational systems – as well as frequencies within those systems³⁰ – is determined and incumbents have decided whether they wish to continue operating their narrowband facilities or migrate to a PEBB broadband build-to-suit system. However, the depth of PDV’s 900 MHz spectrum holdings in most major markets, as confirmed on Schedules I and II, along with its commitment to provide incumbents with comparable facilities in all markets in which it is the PEBB licensee should allay the concerns of those who seemingly underestimated the scope of its 900 MHz spectrum position.

²⁸ See e.g., JVCKenwood Comments at 4.

²⁹ JVCKenwood also laments that the 900 MHz band “has had absolutely no chance to mature as a narrowband allocation since 2004” because of the licensing freeze. JVCKenwood Comments at 10. In fact, the band was available for licensing for two decades before the freeze with ample opportunity to mature, has been extensively licensed in most urban areas (as noted by parties such as Duke and NextEra that cannot locate expansion channels for decades), and the freeze itself affected only new systems, not system expansions. While EWA, in particular, urged the FCC to lift the freeze on multiple occasions, its impact on development of the band should not be overstated.

³⁰ As discussed above, several 900 MHz incumbents expressed great concern that realignment would not allow the minimum separation needed between frequencies at a site, stating that closer separation would impact system coverage. See e.g., Comments of Duke Energy, NextEra, NU, LCRA and Salt River Project Agricultural Improvement and Power District (“SRP District”). The Parties appreciate that there is a wide diversity of use cases among systems, as well as a variety of combining technology that can be used; however, system-specific information will be needed to clarify this issue, since some of these parties’ FCC licenses, as well as those of many other licensees in this band, include frequencies with separations as close as 12.5 kHz at certain sites.

E. Business Issues

1. Build-to-Suit

The Petition proposed that the PEBB licensee would be required to offer a build-to-suit broadband solution to any requesting PE/CII entity, including mandatory priority access for CII, subject to an obligation to negotiate such arrangements in good faith.³¹ The Parties would welcome whatever oversight of the negotiation process the FCC considers appropriate, although they do not believe oversight will be needed, even though some parties are concerned that the PEBB licensee, whether PDV or another entity, will propose such onerous terms that build-to-suit facilities will not be achievable.

In reality, however, having funded the realignment needed to create the PEBB allocation in an MTA, the PEBB licensee will be highly motivated to engage in negotiations that will allow the spectrum to be deployed for PE/CII usage and, therefore, revenue-generating. This is not to say that all negotiations will result in agreements. The prospective user may determine that the cost of deploying broadband facilities that meet its requirements, in particular, extensive coverage requirements in rural areas, cannot be justified. Each entity will need to conduct a cost-benefit analysis, just as it presumably does anytime it considers deploying a communications system on any spectrum. If agreement cannot be reached regarding a 900 MHz build-to-suit broadband arrangement, the entity still will have all the same alternatives for meeting its requirements that is has today. The PEBB approach is simply one more option for it to consider.

It also may be useful to reiterate what PDV has stated publicly and privately: it is willing to consider any reasonable business arrangement that is proposed. Some CII entities may only be comfortable with a long-term *de facto* control lease arrangement, in which they assume

³¹ Petition at 11 and 16.

autonomous control over the construction and operation of broadband facilities designed to their specifications, as well as control of the associated spectrum. Others have indicated that they may prefer to outsource many functions to the PEBB licensee, pursuant to negotiated design and build requirements and SLAs that clearly define both the facilities and functionality of their network. Contractual terms will establish the parties' rights and responsibilities and can be tailored to the unique requirements of each PE/CII entity.

These same contractual obligations, along with the Parties' recommendation that the rules include a requirement that requesting CII entities be afforded priority access on this spectrum, irrespective of the entity holding the license, should resolve the concern that PDV, or another PEBB licensee, will seek to assign its license to a third party. As an initial matter, the Commission will have the responsibility to determine whether the proposed assignee is qualified to hold the PEBB license and to meet the obligations associated with it. If the FCC determines that the applicant is not qualified, it will not grant consent to the assignment. Should consent be granted, the new licensee will be subject to whatever regulatory conditions the FCC has imposed on this spectrum, as well as any contractual obligations that an assignee is required to assume. Thus, parties that enter into agreements to use this spectrum for broadband functionality will have ample regulatory and contractual protections at their disposal to ensure their ongoing operations.

2. Spectrum Management/Coordination

The Petition stated that PDV would engage EWA to manage the process by which appropriate replacement frequencies would be identified for incumbent systems that needed to move from the PEBB allocation.³² The Parties remain convinced that a single entity must oversee that process to avoid the mutually exclusive frequency recommendations that inevitably would

³² Petition at 18.

arise if multiple parties were selecting replacement frequencies for licensees in the same geographic area at the same time. However, the Petitioners appreciate that other organizations, in particular API and UTC, have extensive knowledge about many of the systems that will be affected by realignment. Their expertise will be invaluable in working with EWA to establish the ground rules for replacement frequency assignments and in consulting with their members to confirm the appropriateness of the recommended frequencies for individual systems, the coordination process they undertake today.

3. 900 MHz Freeze

Contrary to the understanding of certain commenting parties,³³ the Petition did not propose a 900 MHz licensing freeze. It did recommend that the Commission remain vigilant regarding the applications received for 900 MHz frequencies during the pendency of this proceeding. It is an unfortunate fact that parties sometimes seek to secure spectrum positions for which they are not eligible, in the hope that they will be able to derive some economic benefit from their authorizations. Should that occur in this band, spectrum that otherwise would be available for incumbents and new, qualified entities while the band realignment proposal is being considered by the FCC instead would be held by parties with no legitimate business need for 900 MHz frequencies to the detriment of the PE/CII community. It is only if the Commission observes an influx of such applications that the Petition recommends imposing a freeze and, even then, as with the previous 900 MHz freeze, the Petitioners recommend that the freeze not apply to the expansion of existing systems by adding sites or frequencies.

³³ See, e.g., JVCKenwood Comments at 6.

II. CONCLUSION

The Commission is committed to making broadband service widely available to the American public, because it recognizes the geometric capacity improvements broadband yields and the powerful applications it can support. It has made impressive progress in this regard, but primarily for the benefit of consumers and, with Congressional assistance, for public safety. It has not yet responded to the CII community's multi-year effort to secure a broadband allocation dedicated to this absolutely critical part of the American economy that plays an essential role in the day-to-day lives of its citizens.³⁴ It now has an opportunity to do so.

The Petition presents a choice. This spectrum can continue to be restricted to narrowband operations using technology with defined capabilities and capacity limits. Alternatively, and consistent with the Commission's ongoing effort to encourage innovation and investment in broadband technology that leads to greater spectrum efficiency, the FCC can ensure that this spectrum is used to provide even more efficient, more advanced service than when deployed in the iDEN network, while also addressing the compelling, well-documented need for PE/CII broadband functionality. In the Petitioners' opinion, the choice is clear.

³⁴ See, e.g., Comments of the Utilities Telecom Council – NBP Public Notice #6, GN Docket No. 09-47, filed Oct. 23, 2009 at 9-11 (“UTC Comments”); see also Reply Comments of API, GN Docket No. 12-354, filed Apr. 5, 2013 at 2; UTC Comments at 6; Reply Comments of API – NBP Public Notice #6, GN Docket No. 09-47, filed Nov. 13, 2009 at 3-5; Reply Comments of API, filed Aug. 18, 2014, and joint Reply Comments of UTC and the Edison Electric Institute, filed Aug. 15, 2014, GN Docket No. 12-354.

SCHEDULE I

Call Sign	Radio Service Code
KNNX653	YD*
KNNX933	YD
KNNX828	YD
KNNX647	YD
KNNX829	YD
KNNY393	YD
KNNX218	YD
KNNX219	YD
KNNX595	YD
KNNX596	YD
KNNX220	YD
KNNX221	YD
KNNX884	YD
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KNNX835	YD
KNNX304	YD
KNNX307	YD
KNNX662	YD
KNNX311	YD
KNNX932	YD
KNNX836	YD

Call Sign	Radio Service Code
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KNNX321	YD
KNNX837	YD
KNNX644	YD
KNNX323	YD
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KNNX225	YD
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KNNX234	YD
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KNNX338	YD
KNNX340	YD
KNNX343	YD
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Call Sign	Radio Service Code
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KNNX242	YD
KNNX791	YD
KNNX417	YD
KNNX418	YD
KNNY285	YD
KNNX419	YD
KNNX243	YD
WPVX323	YD

Call Sign	Radio Service Code
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KNNX420	YD
KNNX894	YD
KNNX793	YD
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WQAD438	YD
KNNX583	YD
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KNNX261	YD
WQAD439	YD
KNNX599	YD

Call Sign	Radio Service Code
KNNX262	YD
KNNX263	YD
KNNX895	YD
KNNX425	YD
KNNX670	YD
KNNX800	YD
KNNX426	YD
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KNNX723	YD
KNNX900	YD
KNNX724	YD
KNNX429	YD
KNNX610	YD
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Call Sign	Radio Service Code
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KNNY221	YD
KNNX949	YD
KNNX272	YD
KNNX725	YD
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KNNX605	YD
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Call Sign	Radio Service Code
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KNNX945	YD
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WQAD442	YD
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Call Sign	Radio Service Code
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WQAD445	YD
KNNX290	YD
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Call Sign	Radio Service Code
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KNNY365	YD
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KNNX446	YD
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KNNX300	YD
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Call Sign	Radio Service Code
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KNNX838	YD
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KNNX454	YD
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KNNY281	YD
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Call Sign	Radio Service Code
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Call Sign	Radio Service Code
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Call Sign	Radio Service Code
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Call Sign	Radio Service Code
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Call Sign	Radio Service Code
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Call Sign	Radio Service Code
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Call Sign	Radio Service Code
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KNNX389	YD

Call Sign	Radio Service Code
KNNX390	YD
KNNX391	YD
KNNX981	YD
WQAD469	YD
KNNX519	YD
KNNX520	YD
KNNX521	YD
KNNX972	YD
KNNX522	YD
KNNY284	YD
KNNX523	YD
KNNX817	YD
KNNX524	YD
KNNX890	YD
KNNX818	YD
KNNX620	YD
KNNX202	YD
KNNX525	YD
KNNX203	YD
KNNX204	YD
KNNX392	YD
KNNX393	YD
KNNX394	YD
KNNX205	YD
KNNX395	YD
KNNX206	YD
KNNX207	YD
KNNX208	YD
KNNY223	YD
KNNX654	YD
KNNX396	YD
KNNX819	YD
KNNX526	YD
KNNX891	YD
KNNX820	YD
KNNX619	YD
KNNX397	YD
KNNX398	YD

Call Sign	Radio Service Code
KNNX527	YD
KNNX528	YD
KNNX529	YD
KNNX399	YD
KNNY416	YD
KNNX530	YD
KNNX400	YD
KNNX821	YD
KNNX401	YD
KNNX892	YD
KNNX822	YD
KNNX618	YD
KNNX209	YD
KNNX210	YD
KNNX211	YD
KNNX212	YD
KNNX402	YD
KNNX403	YD
KNNY289	YD
KNNX531	YD
KNNY379	YD
KNNX532	YD
KNNX533	YD
KNNY288	YD
KNNX534	YD
KNNY287	YD
KNNX404	YD
KNNX823	YD
KNNX699	YD
KNNX893	YD
KNNX824	YD
KNNX617	YD
KNNX405	YD
KNNX686	YD
KNNX406	YD
WQAD470	YD
WQAD471	YD
WQAD472	YD

Call Sign	Radio Service Code
WQAD473	YD
KNNX535	YD
WQAD474	YD
KNNX536	YD
KNNX537	YD
KNNX407	YD
KNNX538	YD
KNNY292	YD
KNNX825	YD
KNNX888	YD
KNNX826	YD
KNNX616	YD
KNNX408	YD
KNNY354	YD
KNNY261	YD
KNNX539	YD
KNNY391	YD
KNNX940	YD
KNNY360	YD
WQAD475	YD
KNNY362	YD
KNNY238	YD
KNNY237	YD
KNNX540	YD
KNNX541	YD
KNNX409	YD
KNNX827	YD
KNNX648	YD
KNNX887	YD
KNNX806	YD
KNNX615	YD
KNNX410	YD
KNNX411	YD
KNNX542	YD
KNNY392	YD
KNNX543	YD
KNNX412	YD
KNNX544	YD

Call Sign	Radio Service Code
KNNY262	YD
KNNX545	YD
KNNY263	YD
KNNX546	YD
KNNX807	YD
WQAN922	YD
KNNX886	YD
KNNX808	YD
KNNX614	YD
WQAN923	YD
KNNX547	YD
KNNX548	YD
KNNX930	YD
WQAN924	YD
KNNX549	YD
KNNX550	YD
KNNX929	YD
KNNX609	YD
KNNX809	YD
WQAD476	YD
KNNX885	YD
KNNX805	YD
KNNX613	YD
WQAD477	YD
WQAD478	YD
WQAD479	YD
WQAD480	YD
WQAD481	YD
WQAD482	YD
KNNX927	YD
KNNX551	YD
KNNY378	YD
KNNX552	YD
KNNX553	YD
KNNX554	YD
KNNX555	YD
KNNX926	YD
KNNX922	YD

Call Sign	Radio Service Code
KNNX775	YD
KNNX556	YD
KNNX883	YD
KNNX776	YD
KNNX612	YD
KNNX842	YD
KNNX557	YD
KNNX962	YD
KNNX558	YD
KNNX559	YD
KNNX560	YD
KNNX561	YD
KNNX562	YD
KNNX563	YD
WQAD483	YD
KNNX564	YD
KNNX565	YD
KNNX413	YD
KNNX777	YD
KNNX414	YD
KNNX878	YD
KNNX778	YD
KNNX611	YD
KNNX213	YD
KNNX214	YD
KNNX415	YD
KNNX215	YD
KNNX566	YD
KNNX416	YD
KNNX216	YD
KNNY260	YD
KNNX567	YD
KNNX217	YD
KNNX568	YD
KNNY259	YD
KNNX569	YD
KNNX570	YD
KNNX967	YD

Call Sign	Radio Service Code
KNNX810	YD
KNNX968	YD
KNNX879	YD
KNNX811	YD
KNNX973	YD
KNNX974	YD
KNNX976	YD
KNNX975	YD
KNNX987	YD
KNNX986	YD
KNNX978	YD
KNNX977	YD
KNNX571	YD
KNNX665	YD
KNNX572	YD
KNNX573	YD
KNNX877	YD
KNNX574	YD
KNNX575	YD
KNNK884	GR**
KNNK884	GR
KNNK888	GR
KNNK888	GR
KNNM740	GR
KNNM742	GR
KNNM744	GR
KNNM817	YS
KNNQ360	YS
KNNQ360	YS
KNNQ360	YS
KNNQ380	YS
KNNQ477	GR
KNNQ477	GR
KNNR242	YS
KNNR277	GR

Call Sign	Radio Service Code
WPMJ646	YS
WPMK955	YS
WPMK955	YS
WPML227	YS
WPML227	YS
WPML227	YS
WPML559	YS
WPMR405	YS
WPMR405	YS
WPMR443	YS
WPMT686	YS
WPMT686	YS
WPMT688	YS
WPMT688	YS
WPMT737	GR
WPMU599	GR
WPMU879	YS
WPMV468	YS
WPMV472	YS
WPMV760	GR
WPMY458	GR
WPMY458	GR
WPMY458	GR
WPMY545	GR
WPMY545	GR
WPMY548	GR
WPMY548	GR
WPMY548	GR
WPMY552	GR
WPMY552	GR
WPMY567	GR
WPMY567	GR
WPNP203	GR
WPNP203	GR
WPNQ317	YS
WPNQ317	YS
WPNS262	GR
WPNS262	GR

Call Sign	Radio Service Code
WPNS268	GR
WPNS268	GR
WPNS991	GR
WPNS991	GR
WPNS999	GR
WPNS999	GR
WPNV224	YS
WPNW459	YS
WPNY268	YS
WPNY752	GR
WPOY223	YS
WPOY340	GR
WPOY340	GR
WPOY456	GR
WPPA341	GR
WPPA501	GR
WPPC553	YS
WPPC553	YS
WPPC555	YS
WPPC555	YS
WPPD506	GR
WPPD862	YS
WPPD967	YS

Call Sign	Radio Service Code
WPPE467	YS
WPPE717	YS
WPPE717	YS
WPPF281	YS
WPPF424	GR
WPPF699	GR
WPPF812	YS
WPPF812	YS
WPPG478	GR
WPPG481	YS
WPPH383	YS
WPPH437	YS
WPPH440	YS
WPPH440	YS
WPPH809	YS
WPPH809	YS
WPPU369	GR
WPPU370	GR
WPPU763	YS
WPPU763	YS
WPPV328	GR
WPPV328	GR
WPPX913	YS
WPPX913	YS
WPPX913	YS

Call Sign	Radio Service Code
WPTP498	GR
WPTP796	YS
WPTP796	YS
WPTR966	GR
WPTR966	GR
WPTS442	GR
WPTS759	GR
WPTS759	GR
WPTT658	GR
WPTT658	GR
WPTT658	GR
WPTT850	YS
WPTU725	YS
WPTV228	GR
WPTV379	YS
WPUA354	GR
WPUA566	GR
WPUA566	GR
WPUB884	YS
WPUC280	YS
WPUF395	YS
WPUJ232	YS
WPUJ238	GR
WPUJ238	GR
WPUJ249	YS
WPUP619	GR
WPUQ374	YS

Call Sign	Radio Service Code
WPUQ374	YS
WPUU528	YS
WPUW817	YS
WPUX461	GR
WPUX476	YS
WPUX591	YS
WPUX591	YS
WPUY414	YS
WPVB243	YS
WPVM619	GR
WPVM619	GR
WPVM619	GR
WPVP576	YS
WPVR273	GR
WPVR273	GR
WPVR380	GR
WPVR380	GR
WPVT238	YS
WPVT932	GR
WPVX629	GR
WPVY597	GR
WPVY667	YS
WPVY668	YS
WPVY980	YS
WPWB976	YS
WPWD260	GR
WPWD260	GR
WPWD260	GR
WPWG413	GR
WPWI426	YS
WPWP200	GR
WPWP200	GR
WPWR742	GR
WPWR744	GR
WPXB478	YS
WPXF495	YS

Call Sign	Radio Service Code
WPXF495	YS
WPXG645	YS
WPXL765	YS
WPXL765	YS
WPXL765	YS
WPXR947	YS
WPXU641	GR
WPXU641	GR
WPXZ932	YS
WPYC985	GR
WPYH777	YS
WPYP818	GR
WPYQ732	YS
WPYQ732	YS
WPYQ836	GR
WPYR716	GR
WPYR716	GR
WPZK424	GR
WPZQ703	GR
WPZQ703	GR
WPZS255	GR
WPZS255	GR
WPZT352	YS
WPZT878	GR
WPZT878	GR
WPZZ369	YS
WPZZ369	YS
WPZZ369	YS
WPZZ445	YS
WQAB904	YS
WQAC759	YS
WQAAQ567	YS
WQAAQ998	GR
WQAT701	GR

Call Sign	Radio Service Code
WQAT705	YS
WQAT707	YS
WQAT990	YS
WQAV239	YS
WQBB243	GR
WQBB243	GR
WQBB438	YS
WQBB508	YS
WQBD645	GR
WQBE420	GR
WQBE439	YS
WQBE826	YS
WQBJ574	YS
WQBJ574	YS
WQBJ574	YS
WQBJ699	GR
WQBJ699	GR
WQBP802	GR
WQBR692	GR
WQBS538	GR
WQBX747	GR
WQBX747	GR
WQCS342	YS
WQCS343	YS
WQCS343	YS
WQCZ658	GR
WQDF972	YS
WQDS273	YS
WQEA366	GR
WQEA366	GR
WQEB974	YS
WQEE561	GR
WQEE561	GR

Call Sign	Radio Service Code
WQEE561	GR
WQEF571	YS
WQEL700	YS
WQEL700	YS
WQES539	YS
WQES539	YS
WQES539	YS
WQES540	YS
WQES541	YS
WQFW743	YS
WQFZ699	YS
WQFZ700	YS
WQFZ701	YS
WQFZ997	YS
WQFZ998	YS
WQFZ999	YS
WQGA201	YS
WQGA202	YS
WQGA203	YS
WQGE464	YS
WQGF390	GR
WQGJ475	YS
WQGN682	GR
WQGN682	GR
WQGN683	YS
WQGN684	GR

Call Sign	Radio Service Code
WQGN684	GR
WQGN888	GR
WQGN889	GR
WQGN891	YS
WQGS773	GR
WQGS774	YS
WQHI360	GR
WQHK503	YS
WQHK503	YS
WQIC487	YS
WQIF430	GR
WQIF431	GR
WQIF432	GR
WQIH255	YS
WQII739	YS
WQIP554	GR
WQIQ837	GR
WQIR440	YS
WQIR441	YS
WQIU779	YS
WQSU771	YS
WQSU773	YS
WQSU775	YS
WQSU776	YS
WQSU780	YS

Call Sign	Radio Service Code
WQSU783	YS
WQSU784	YS
WQSU785	YS
WQSU786	YS
WQSU787	YS
WQSU788	YS
WQSU789	YS
WQSU790	YS
WQSU791	YS
WQSU792	YS
WQSU793	YS
WQSU794	YS
WQSU795	YS
WQSU796	YS
WQSY843	YS

Call Sign	Radio Service Code
WQSY885	YS
WQSY908	YS
WQSY909	YS
WQSY912	YS
WQSY913	YS
WQSY914	YS
WQSY915	YS
WQSY920	YS
WQSY921	YS
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WQSY925	YS
WQSY926	YS
WQSY927	YS
WQSY928	YS

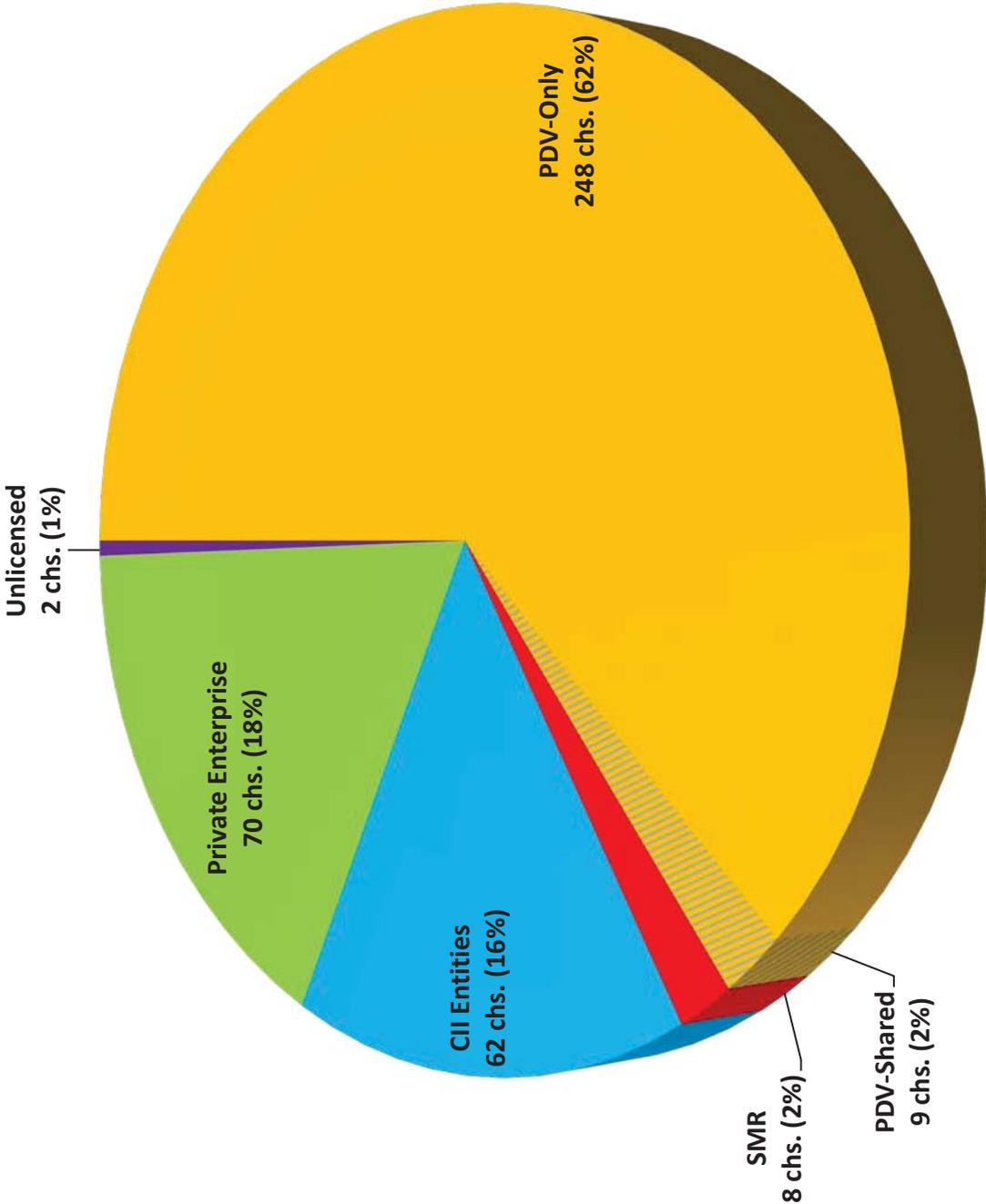
Call Sign	Radio Service Code
WQSY929	YS
WQTD789	YS
WQTD791	YS
WQTD792	YS
WQTD793	YS
WQTD794	YS
WQTE371	YS
WQTE372	YS
WQTE375	YS
WQTE376	YS
WQTE377	YS
WQTE379	YS
WQTE380	YS
WQTF994	YS
WQTH968	YS

*YD licenses are geographic authorizations for the use of 10 channels throughout an MTA.

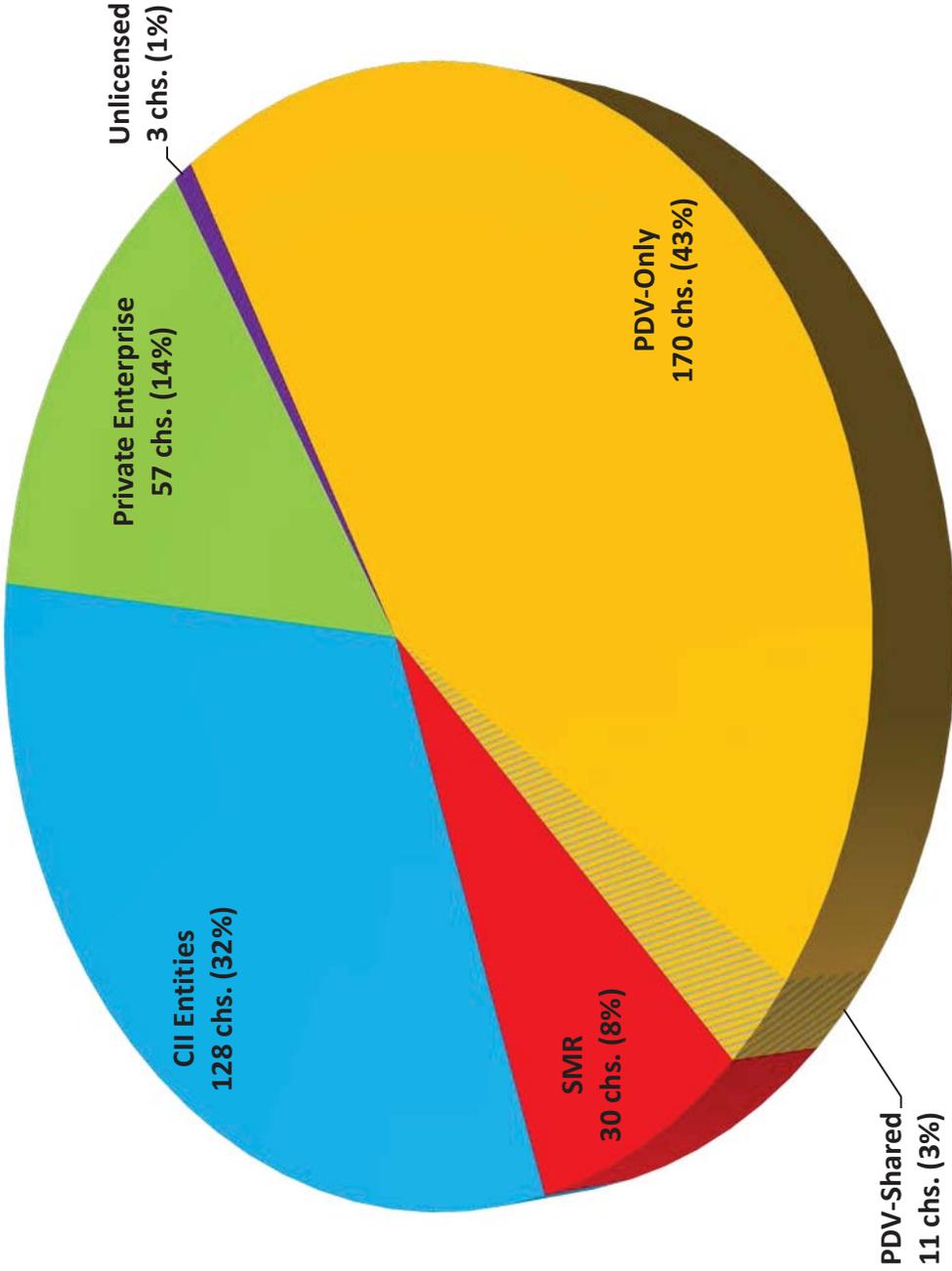
**Non-YD licenses are site-based authorizations that can include up to 6 sites per call sign and multiple frequencies per site.

SCHEDULE II

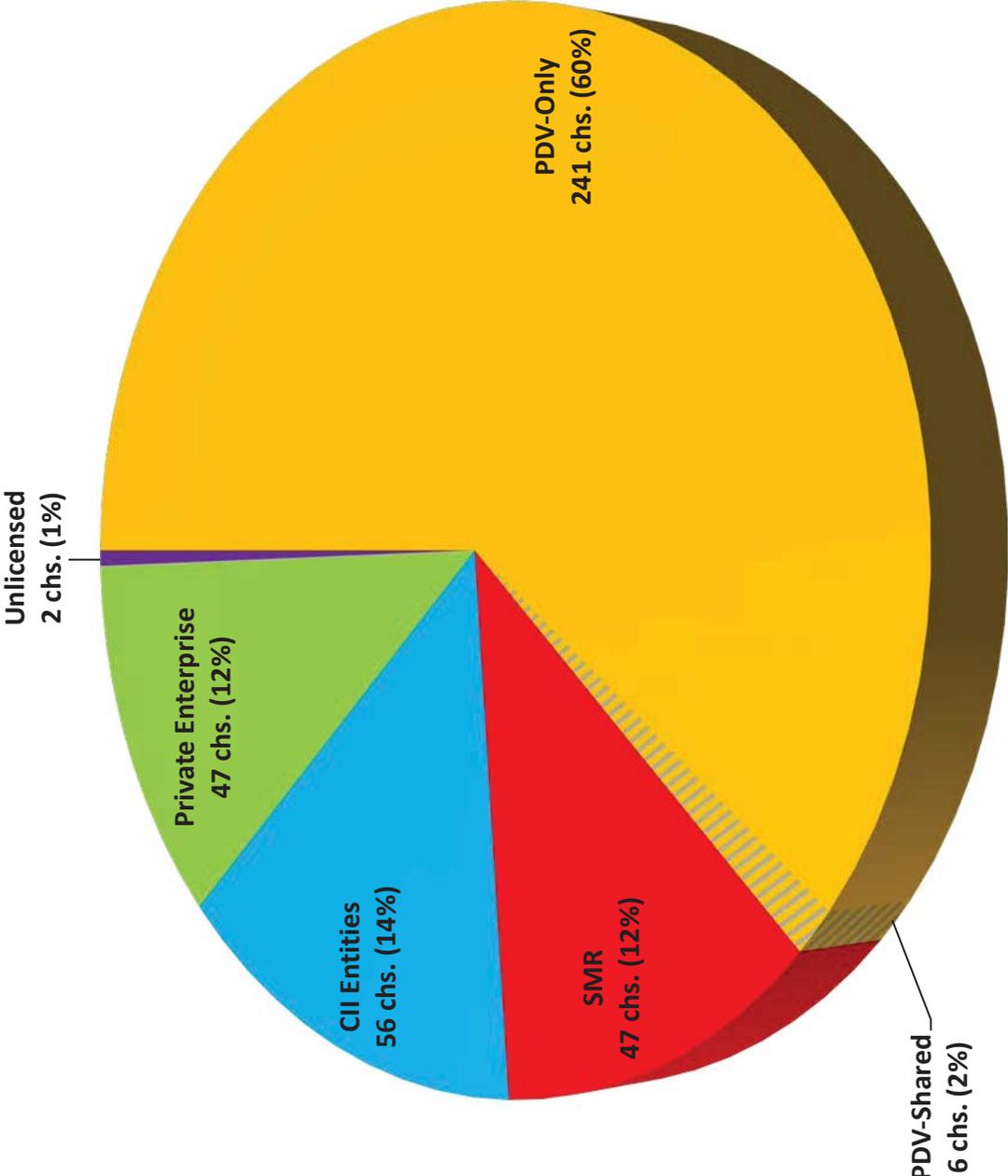
New York - Licensee Categories



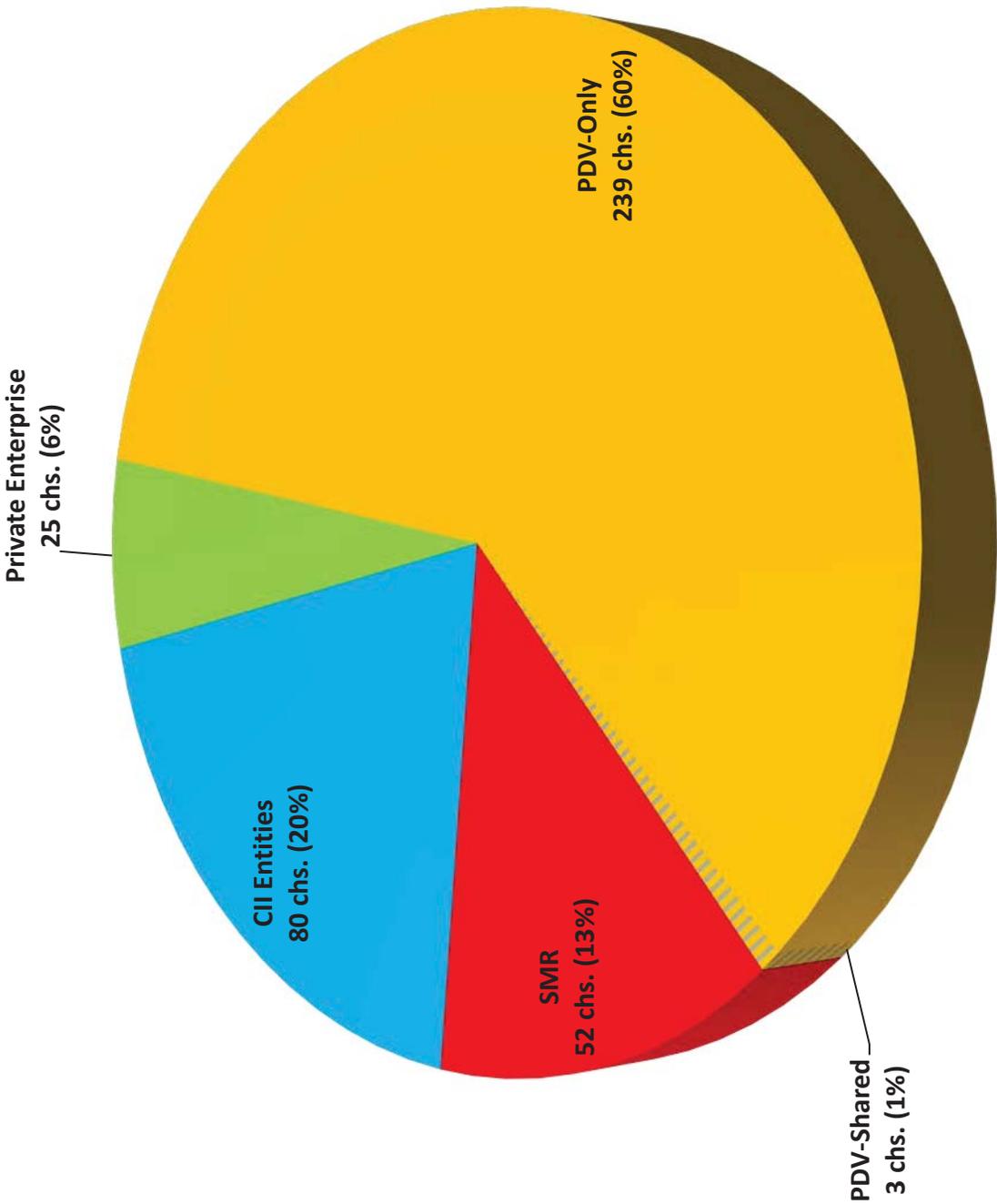
Los Angeles - Licensee Categories



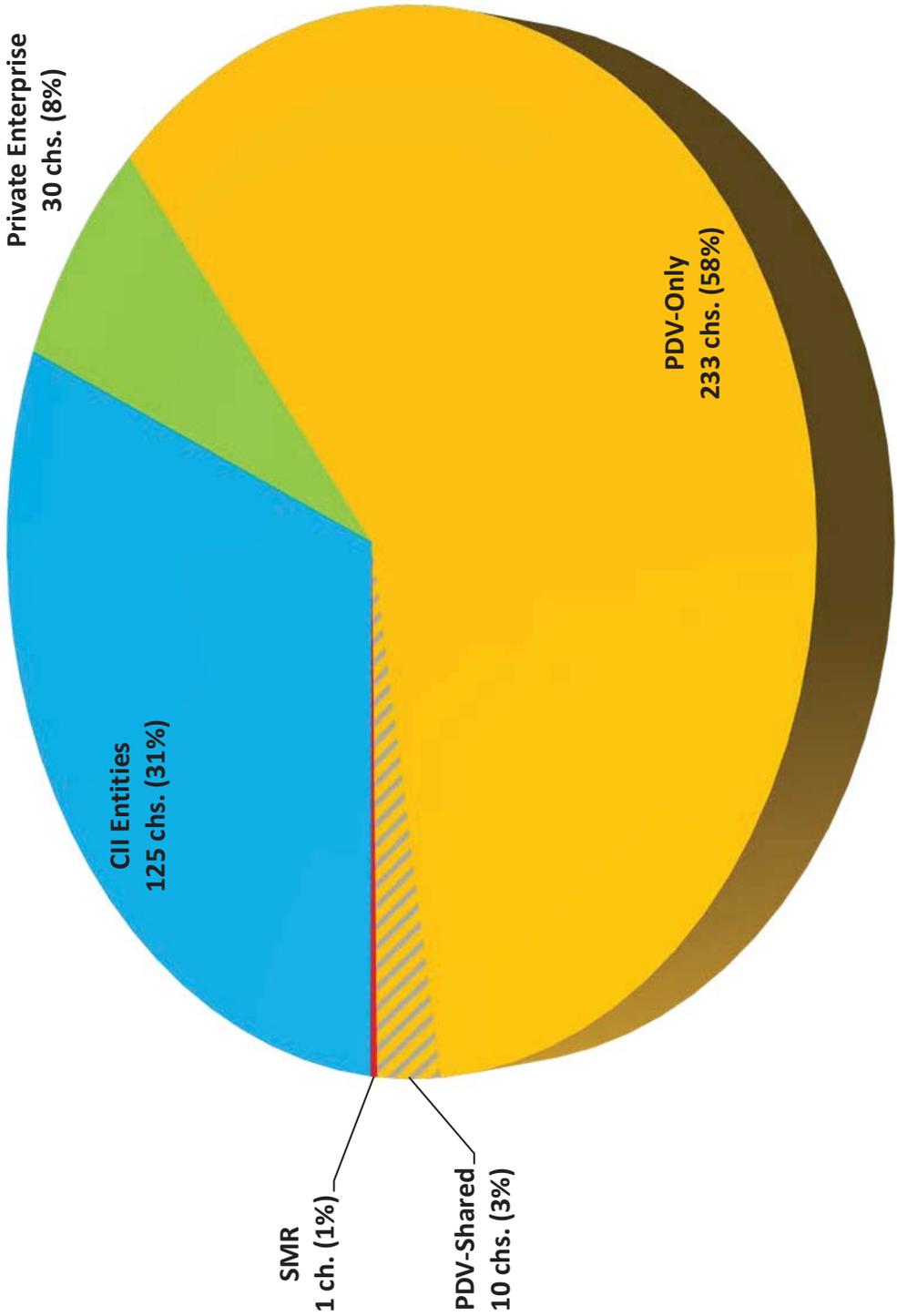
Chicago - Licensee Categories



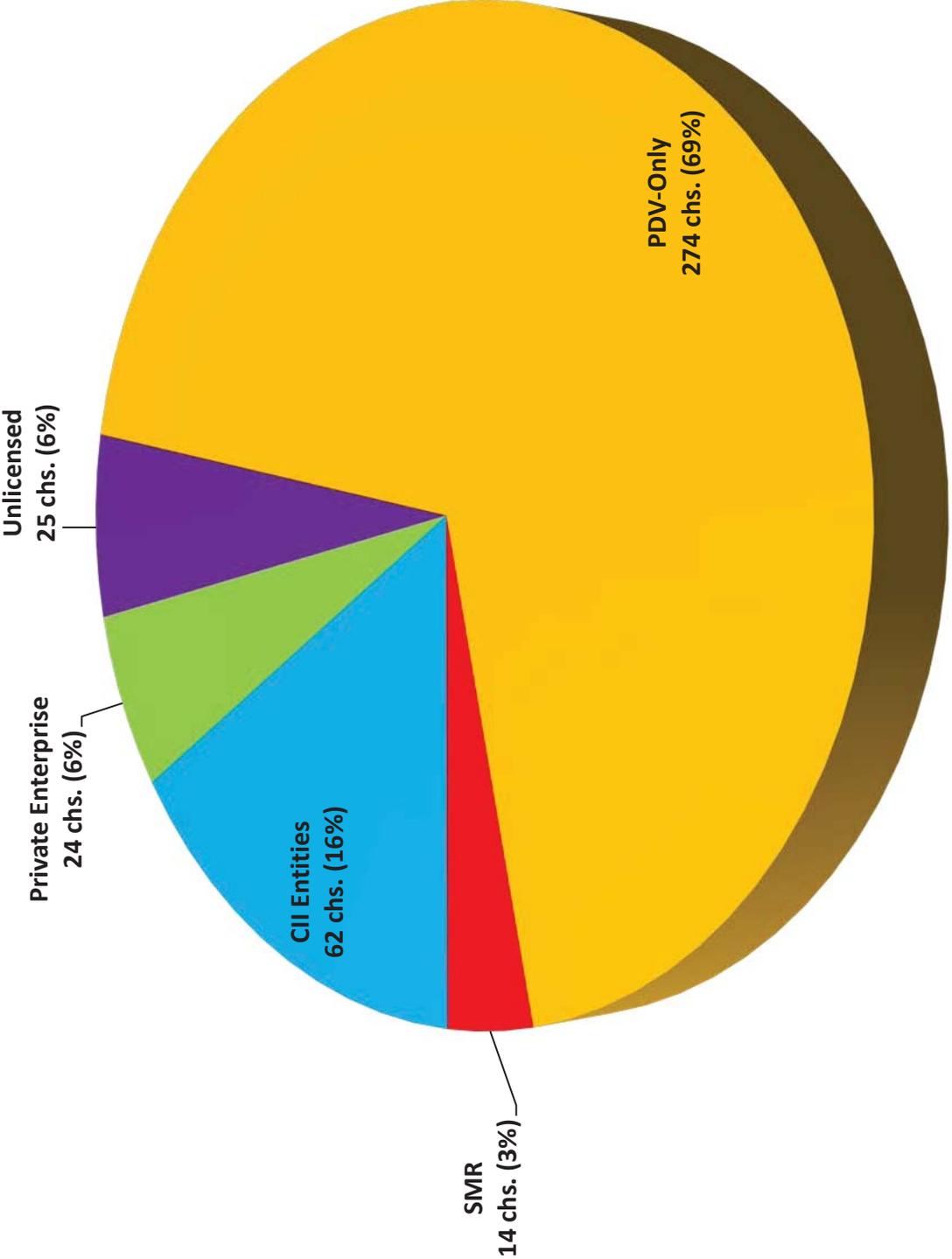
Dallas - Licensee Categories



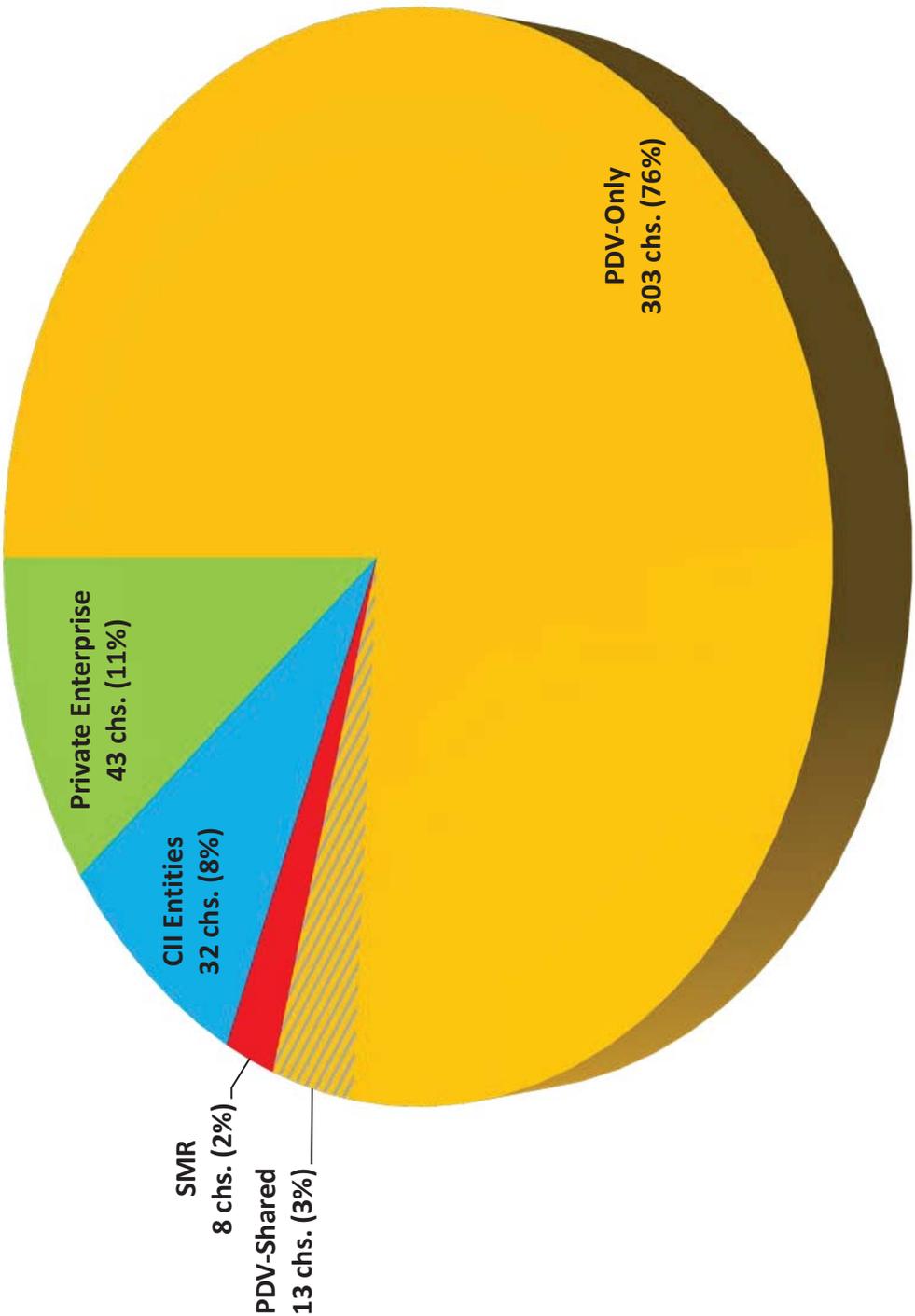
Houston - Licensee Categories



Philadelphia - Licensee Categories

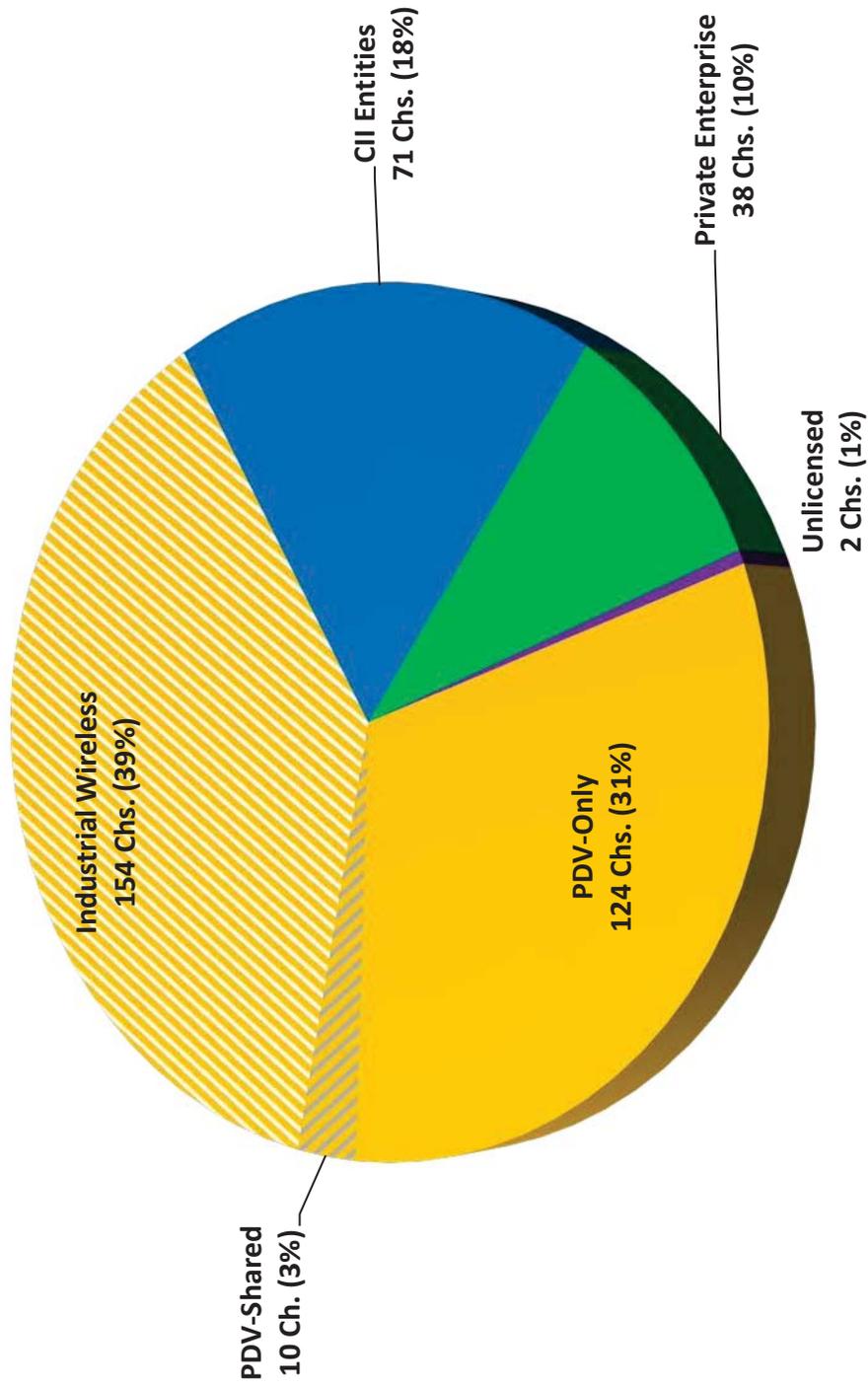


DC - Licensee Categories

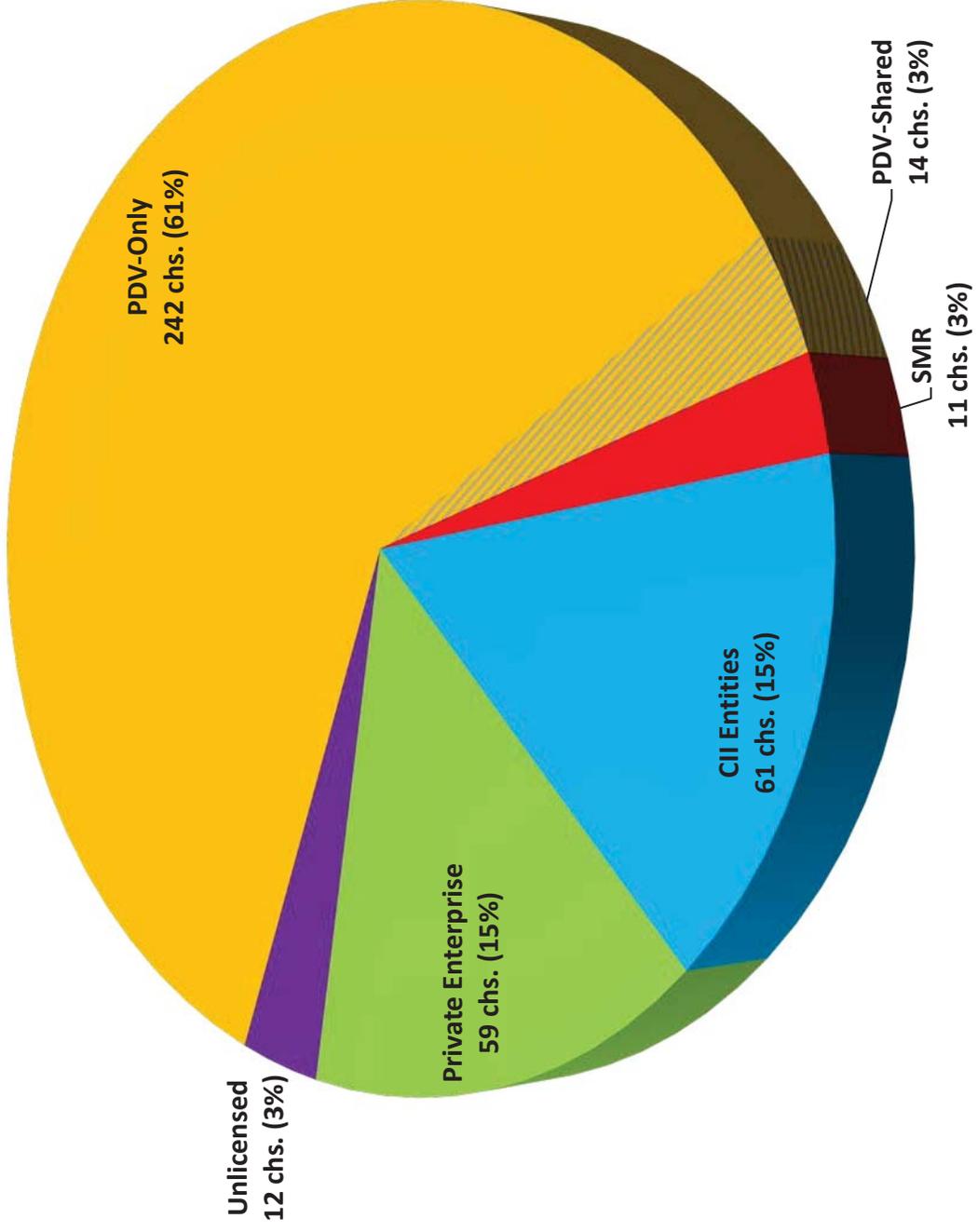


Miami - Licensee Categories

(See Footnote #27)

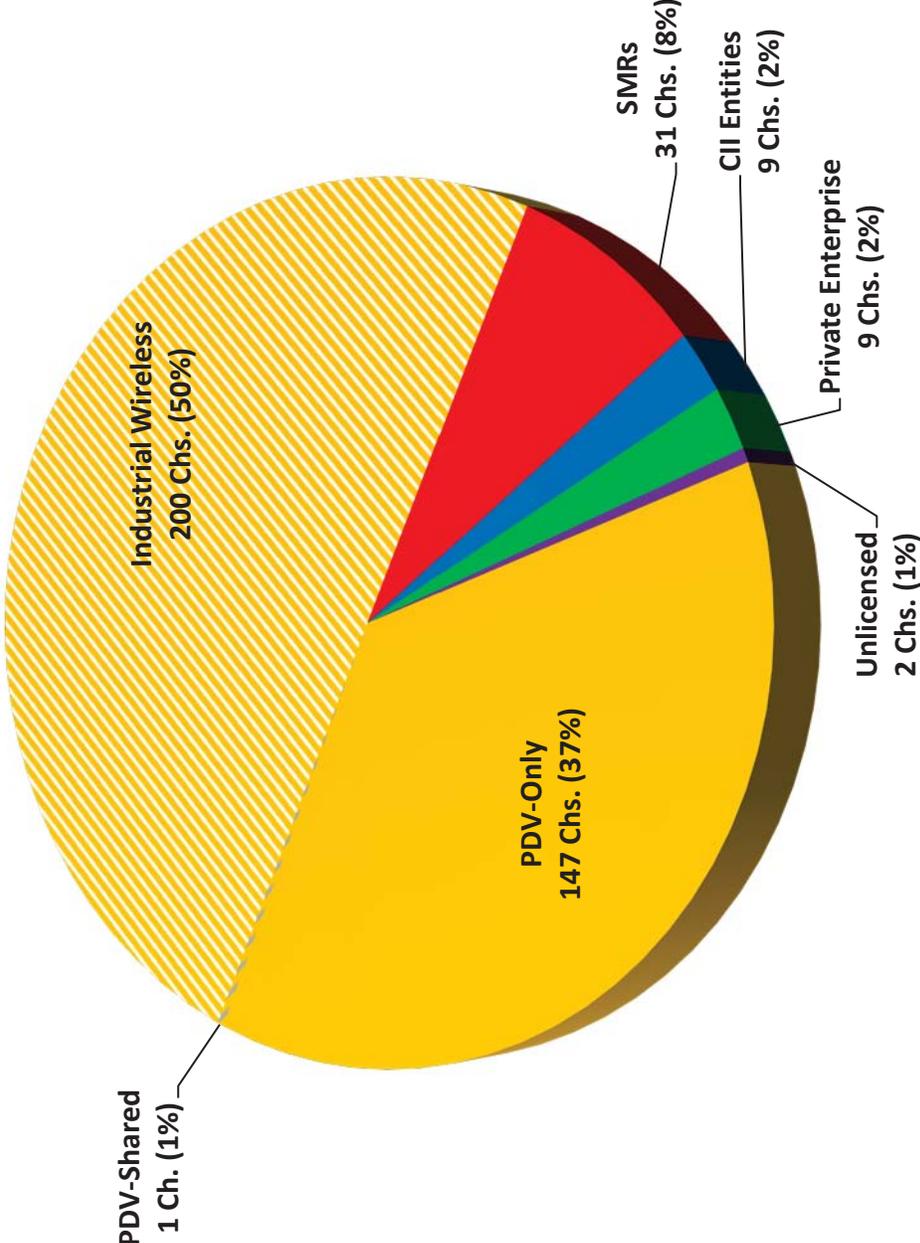


Atlanta - Licensee Categories

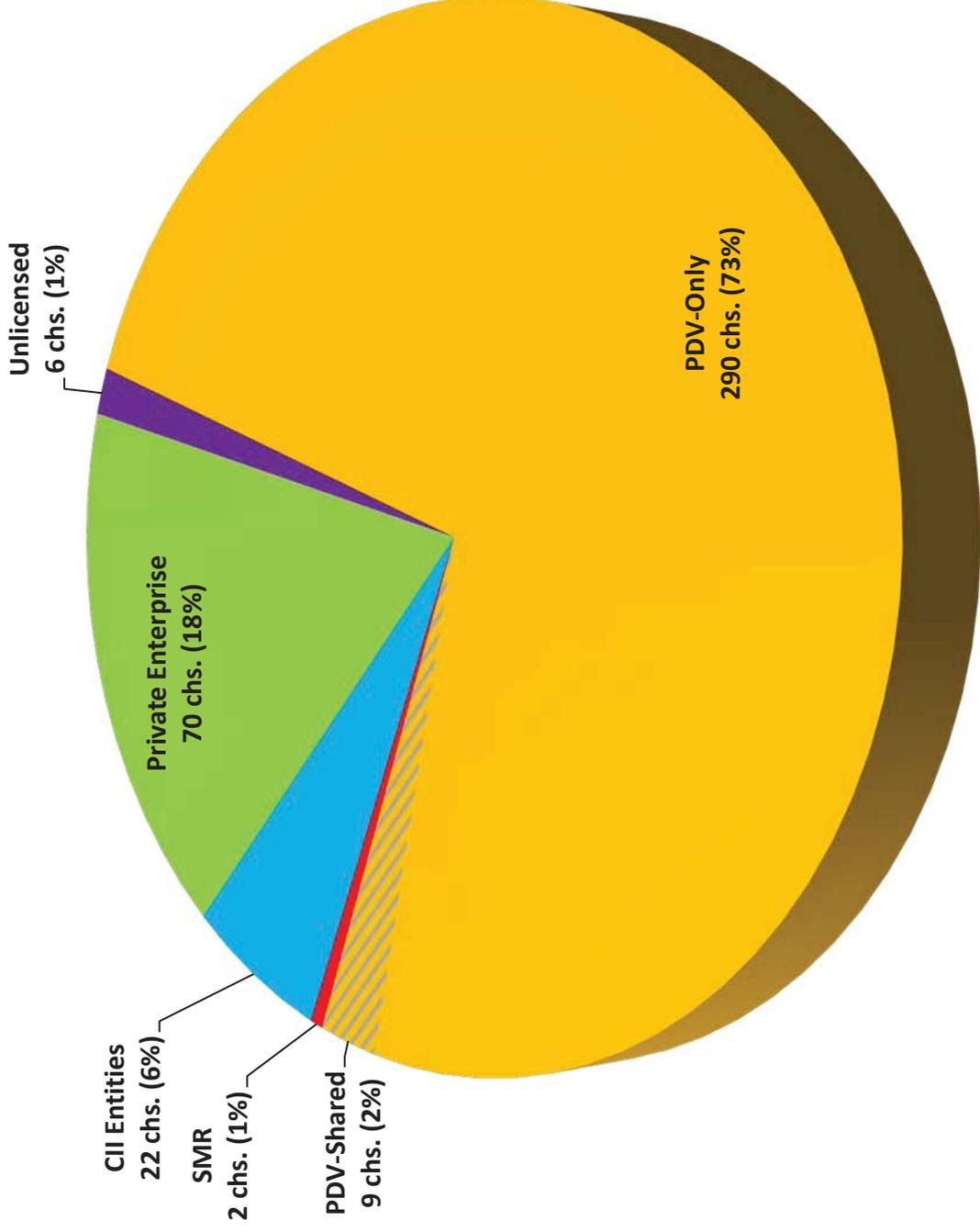


Boston - Licensee Categories

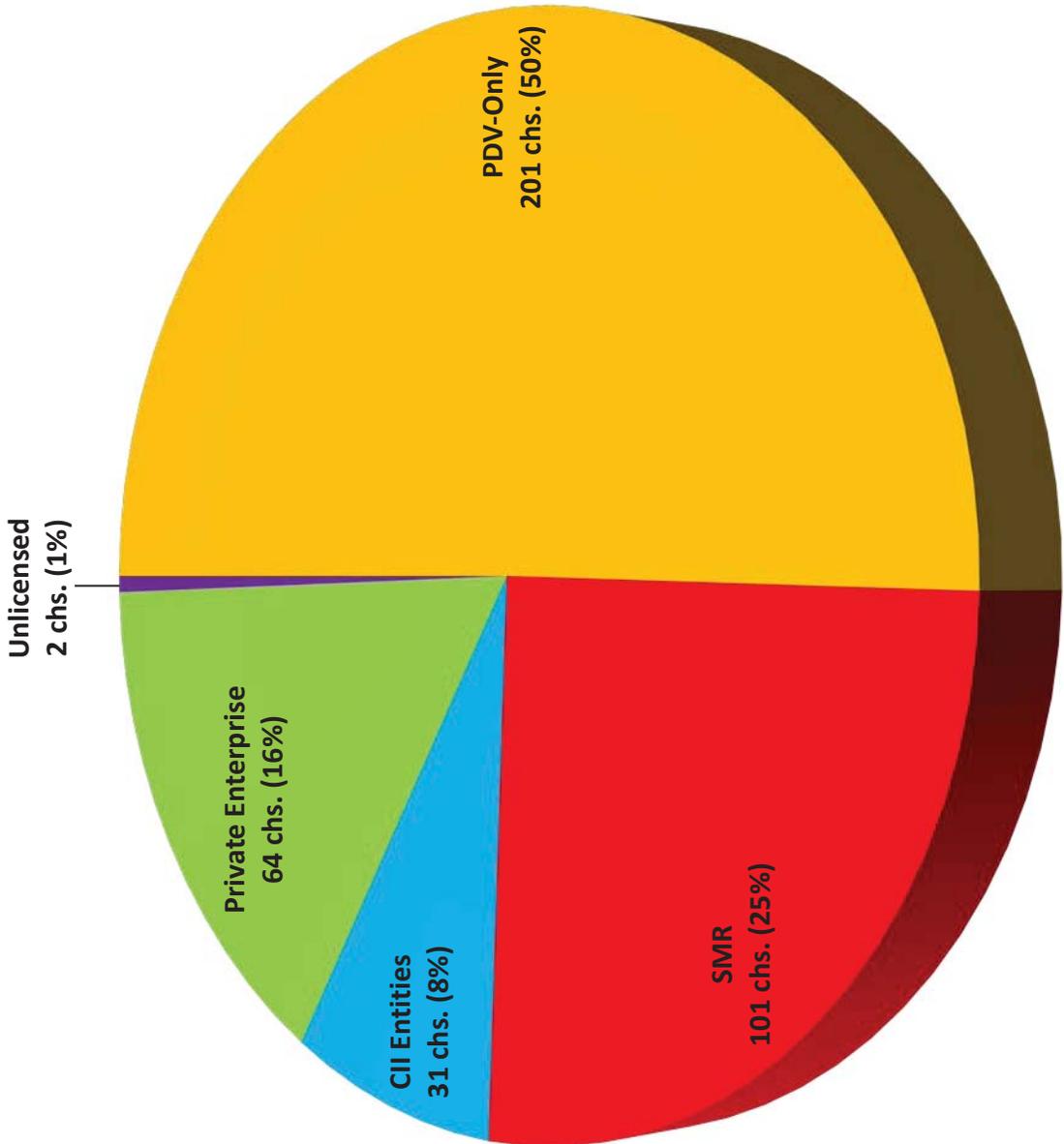
(See Footnote #27)



San Francisco - Licensee Categories

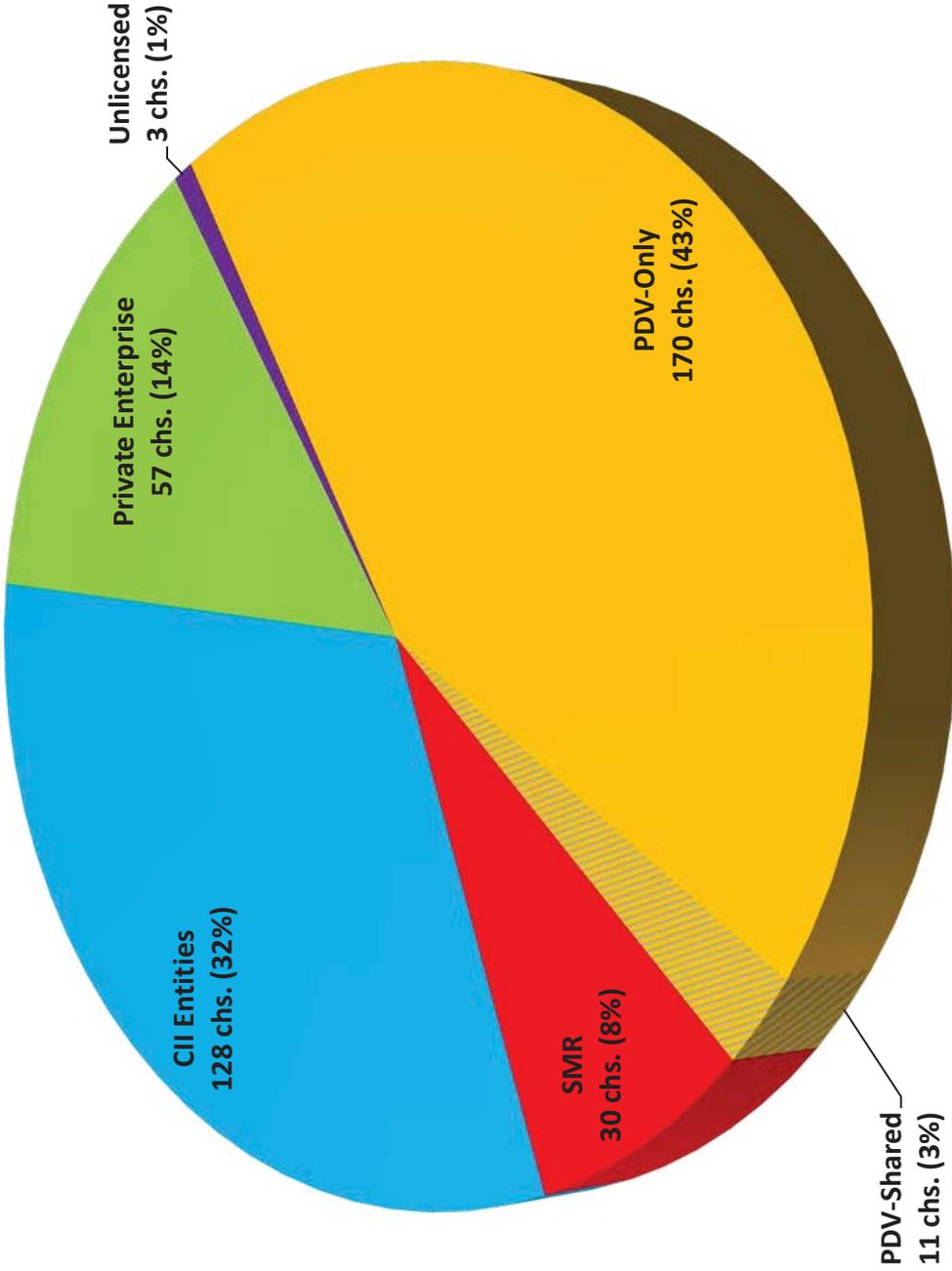


Phoenix - Licensee Categories

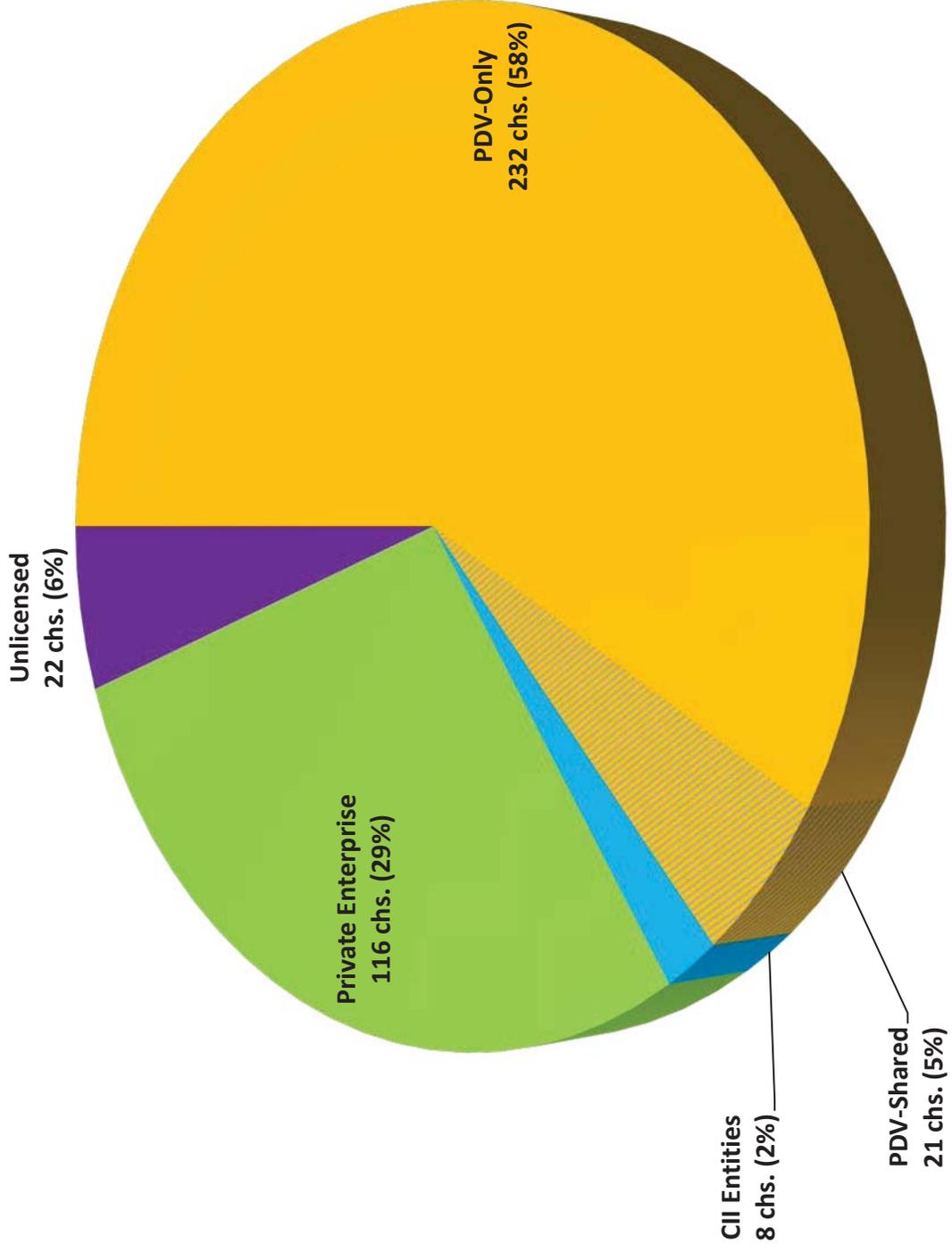


Riverside - Licensee Categories

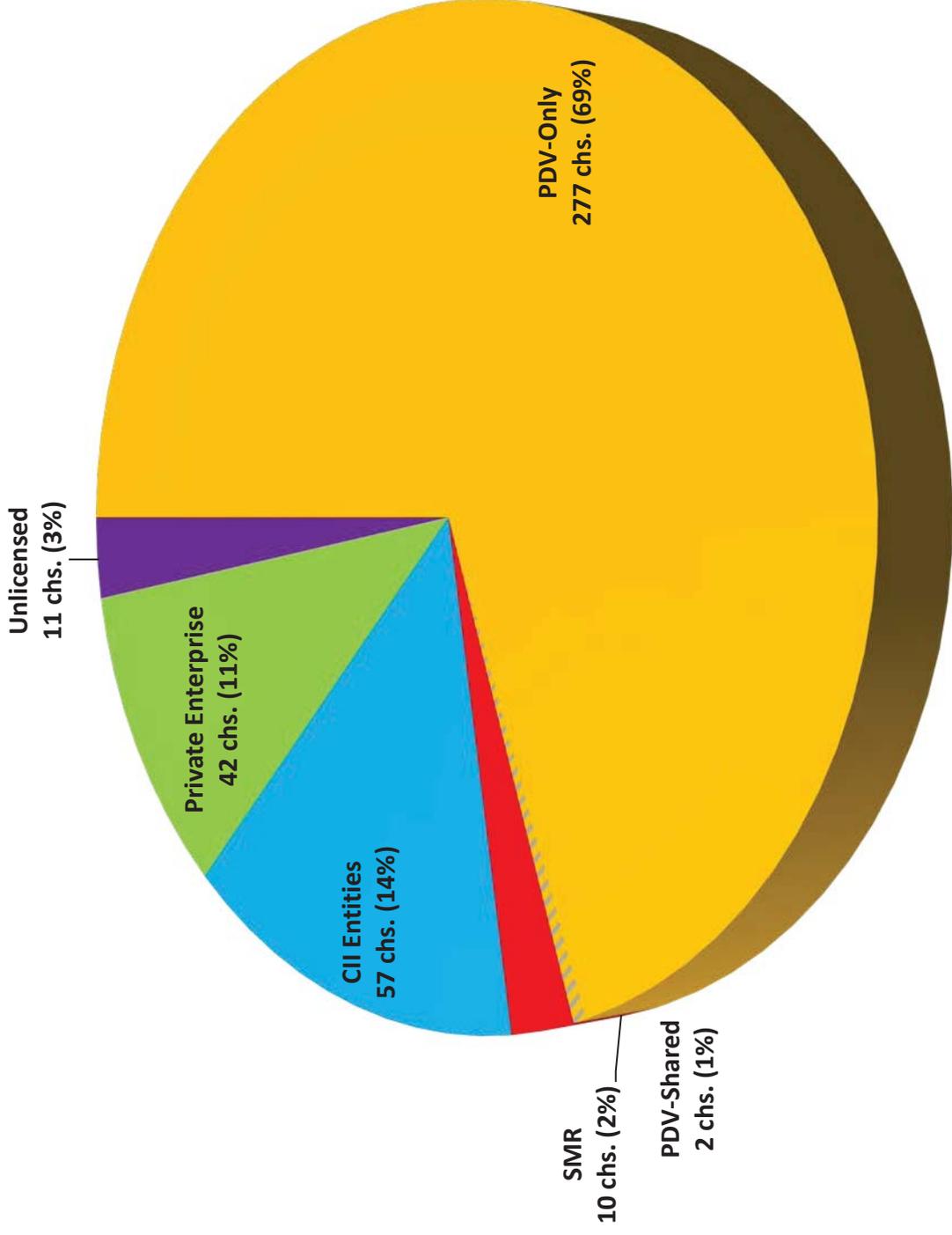
(Based on Los Angeles)



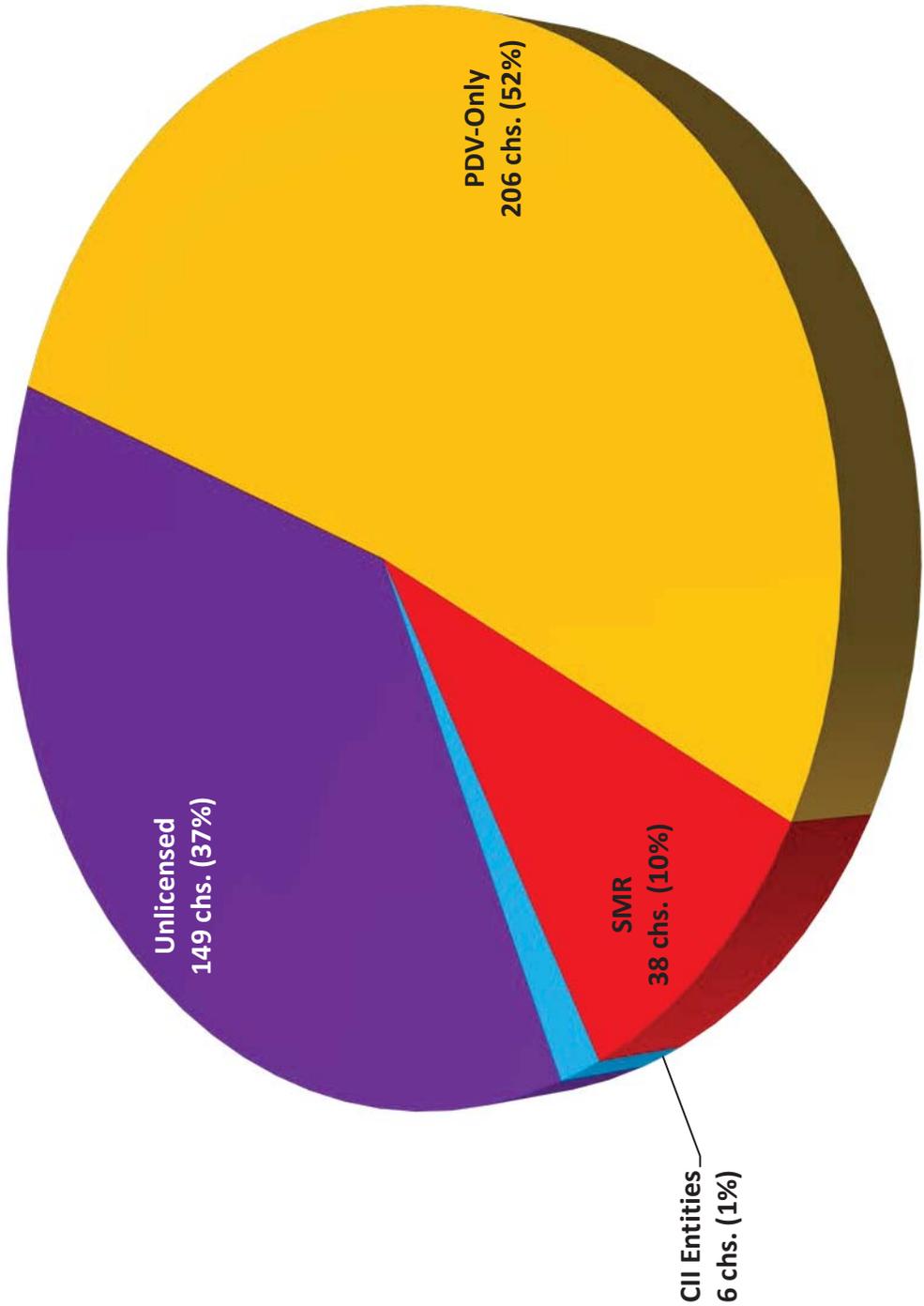
Detroit - Licensee Categories



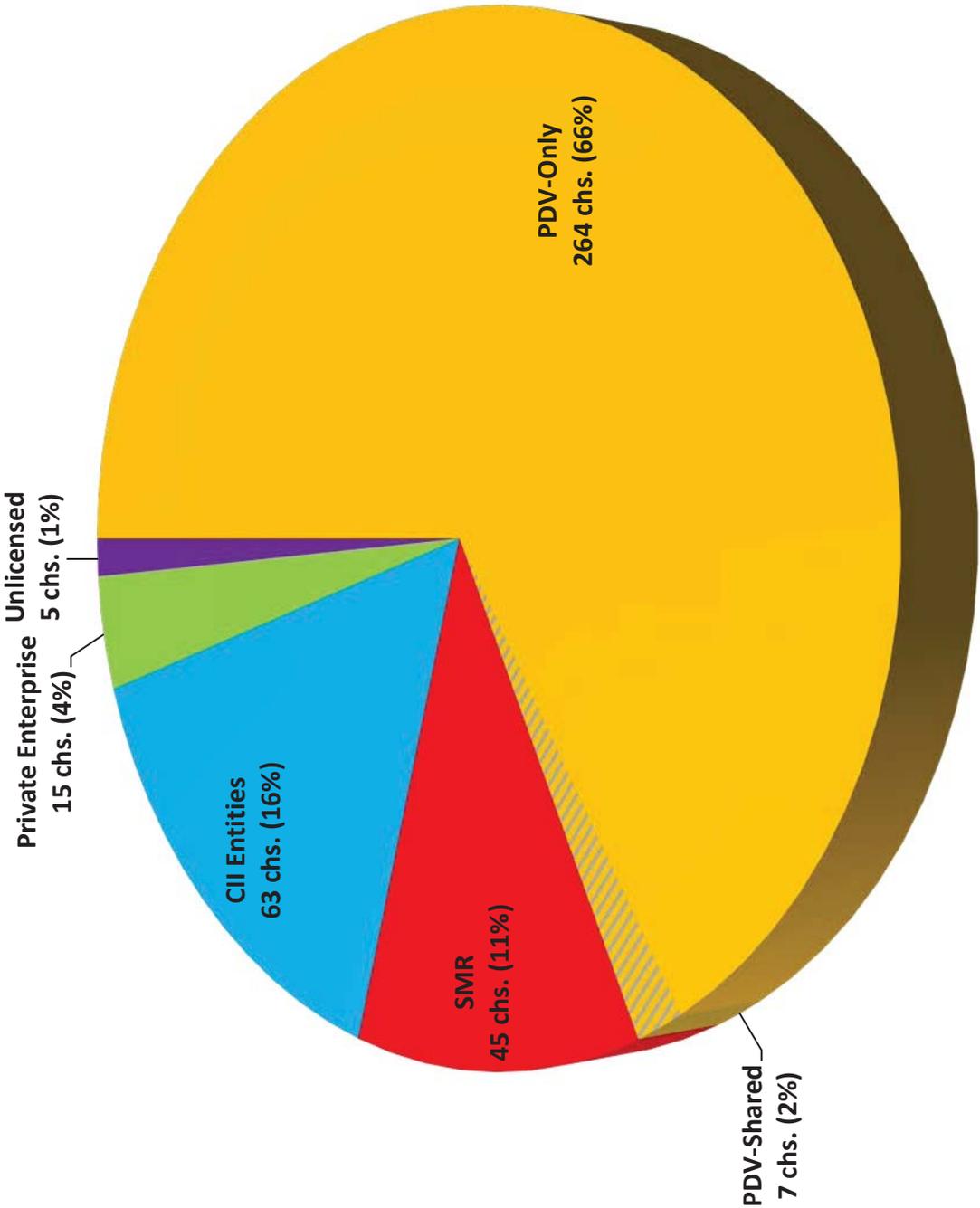
Seattle - Licensee Categories



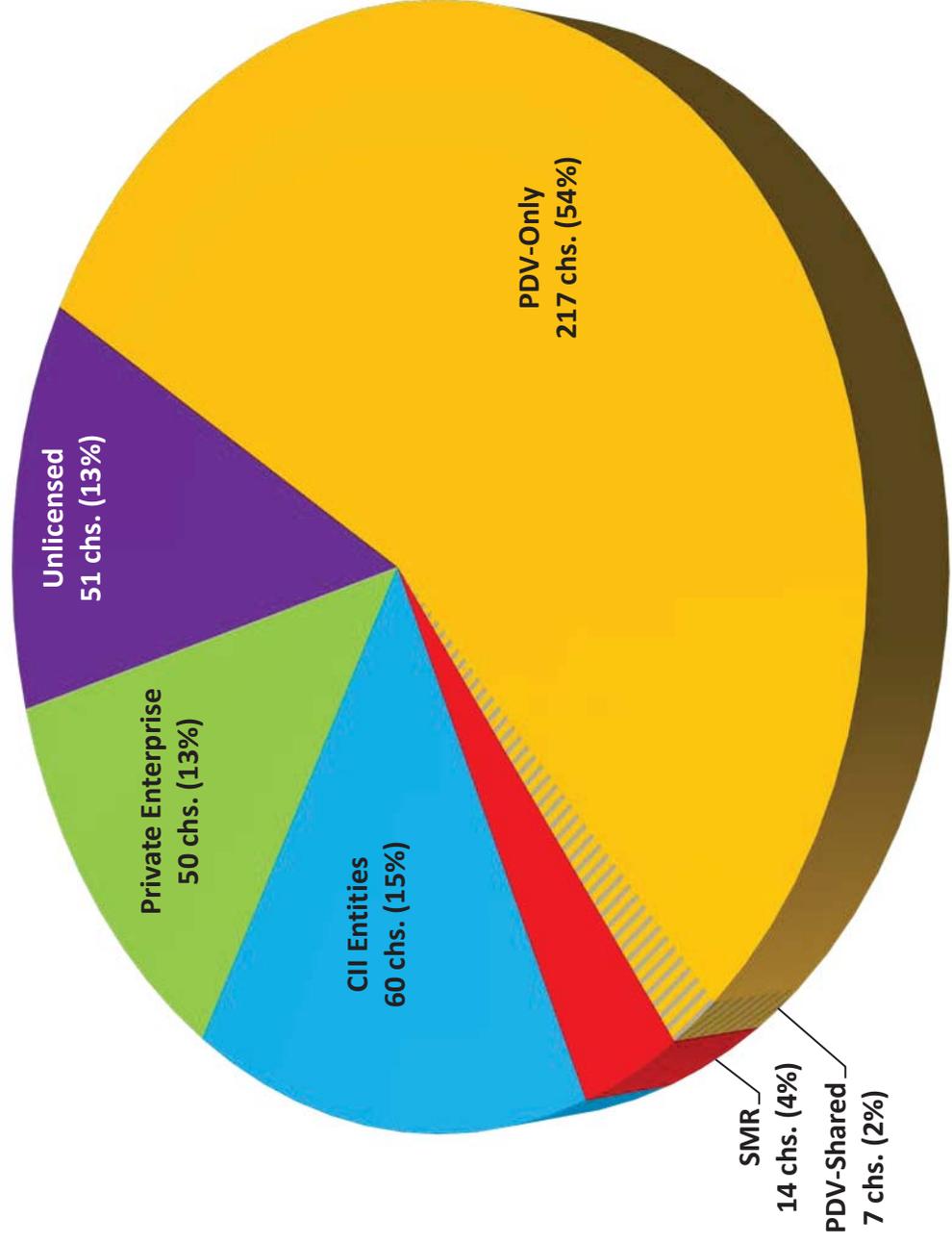
Minneapolis - Licensee Categories



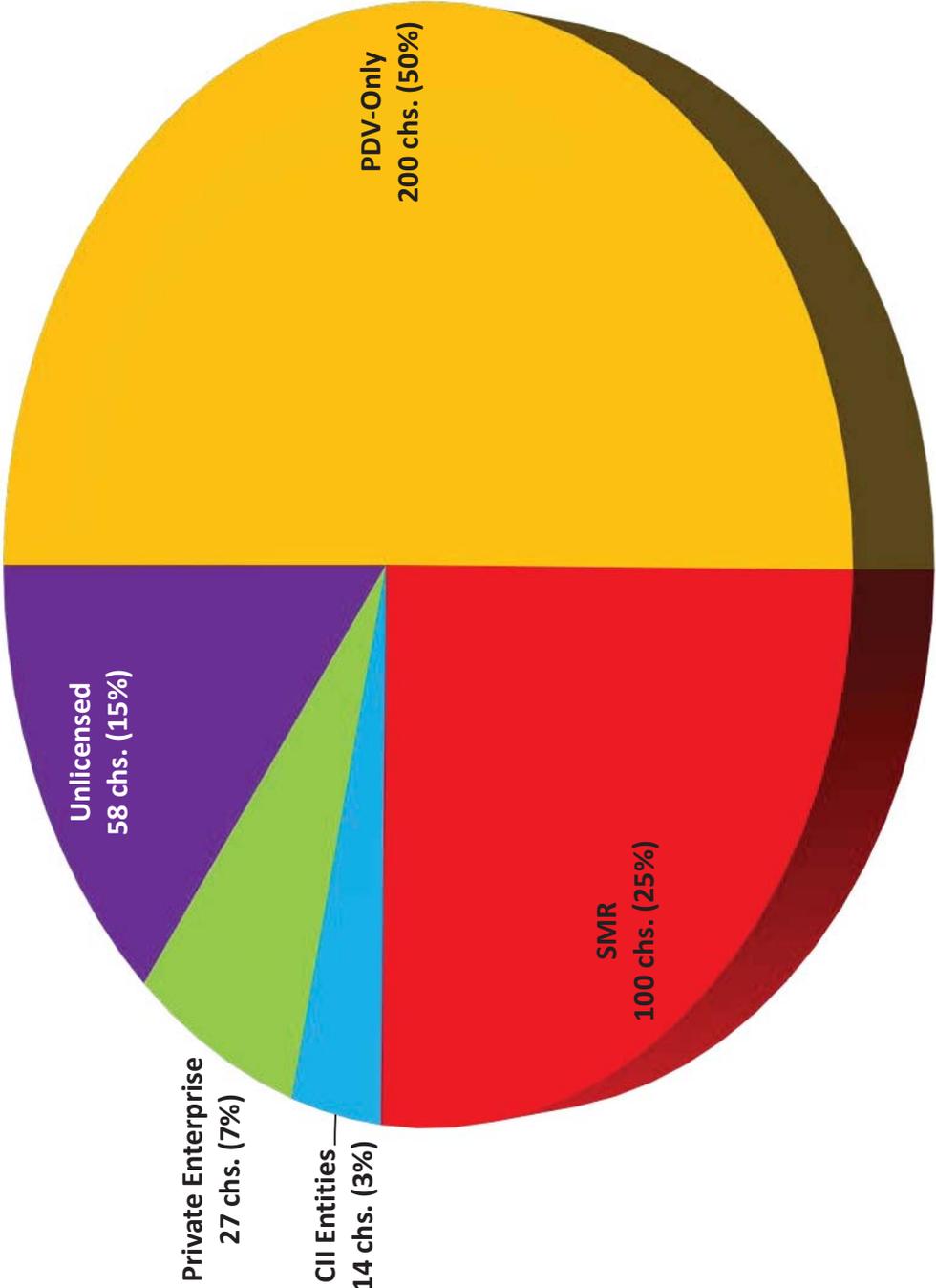
San Diego - Licensee Categories



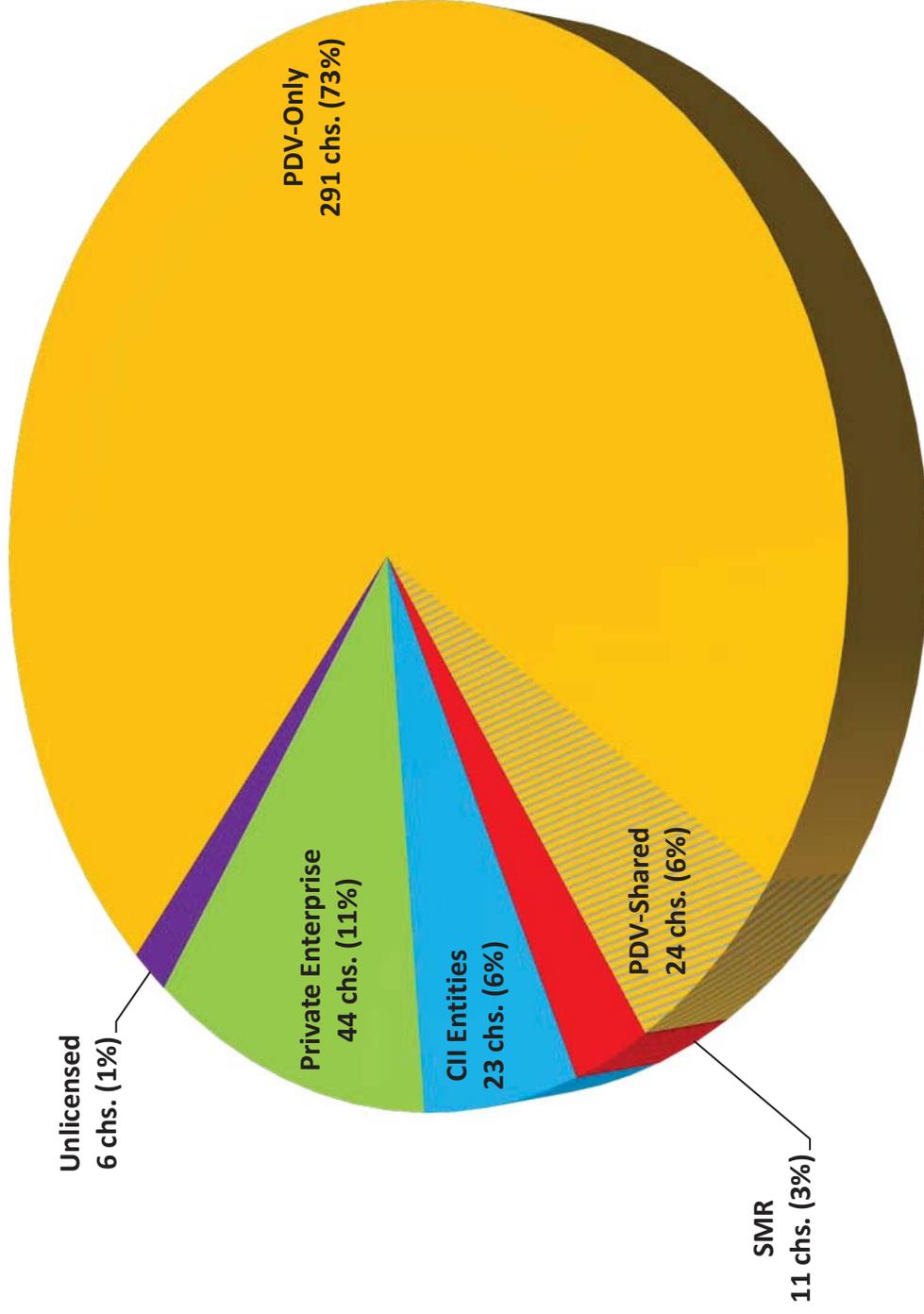
Tampa - Licensee Categories



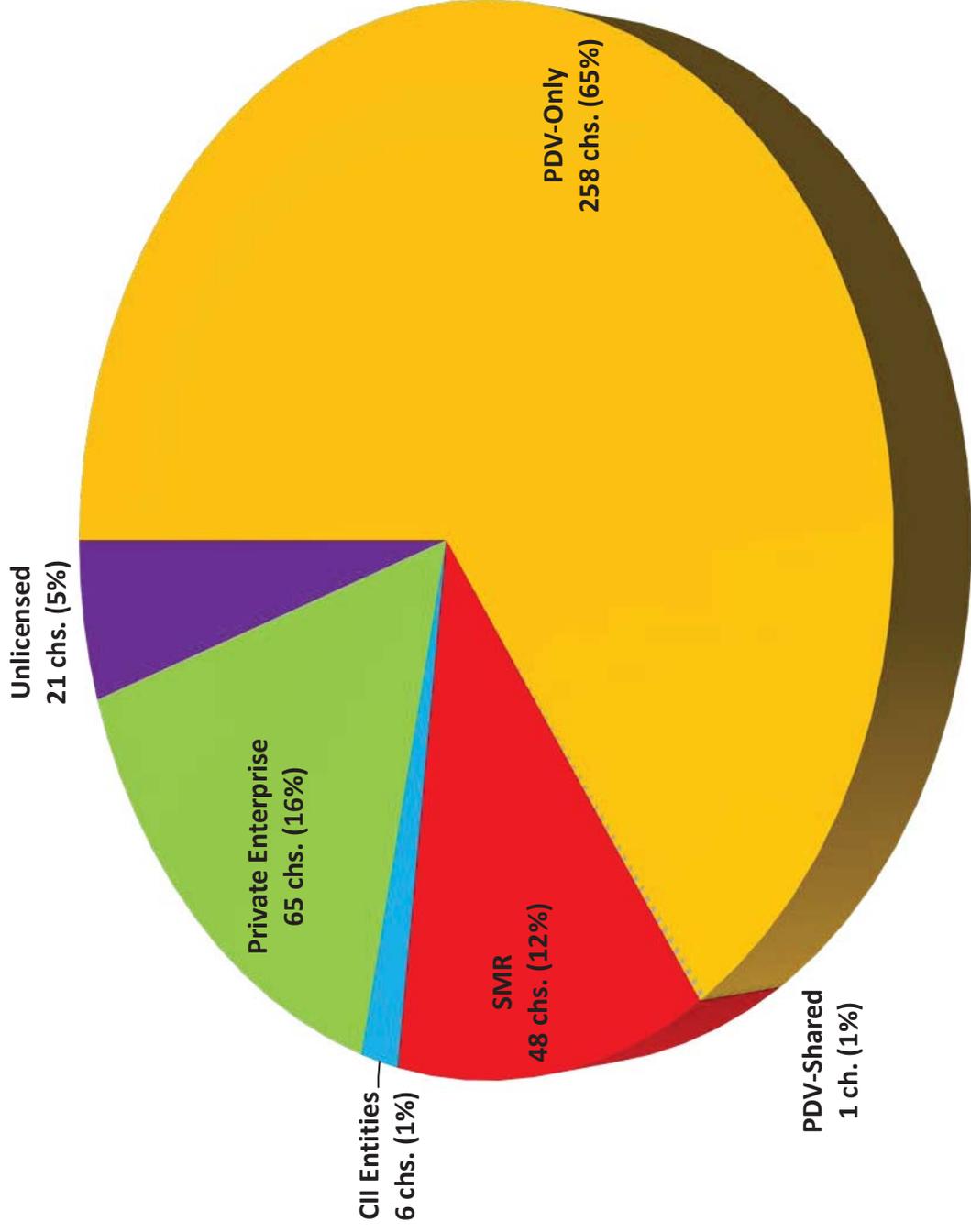
St. Louis - Licensee Categories



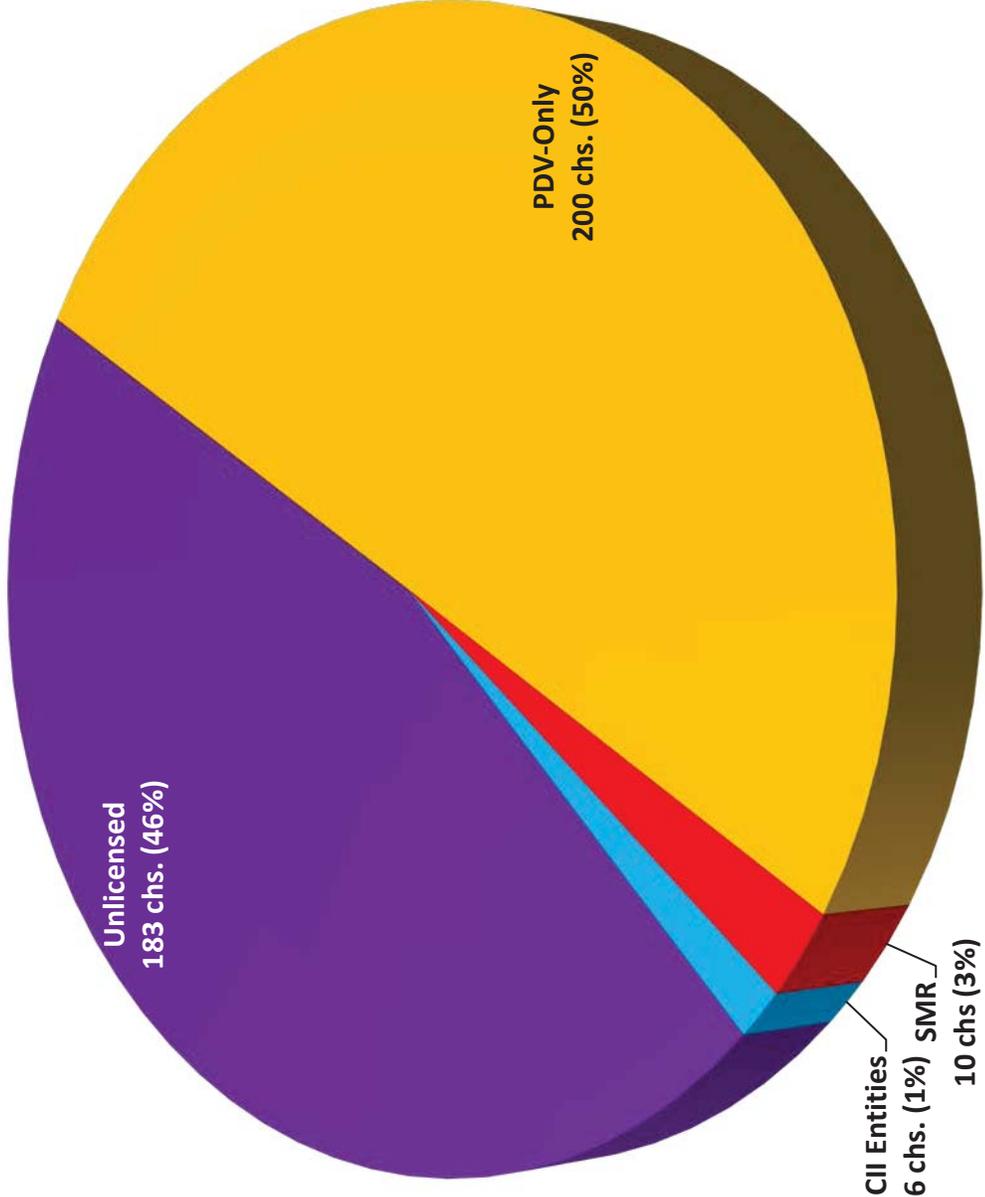
Baltimore - Licensee Categories



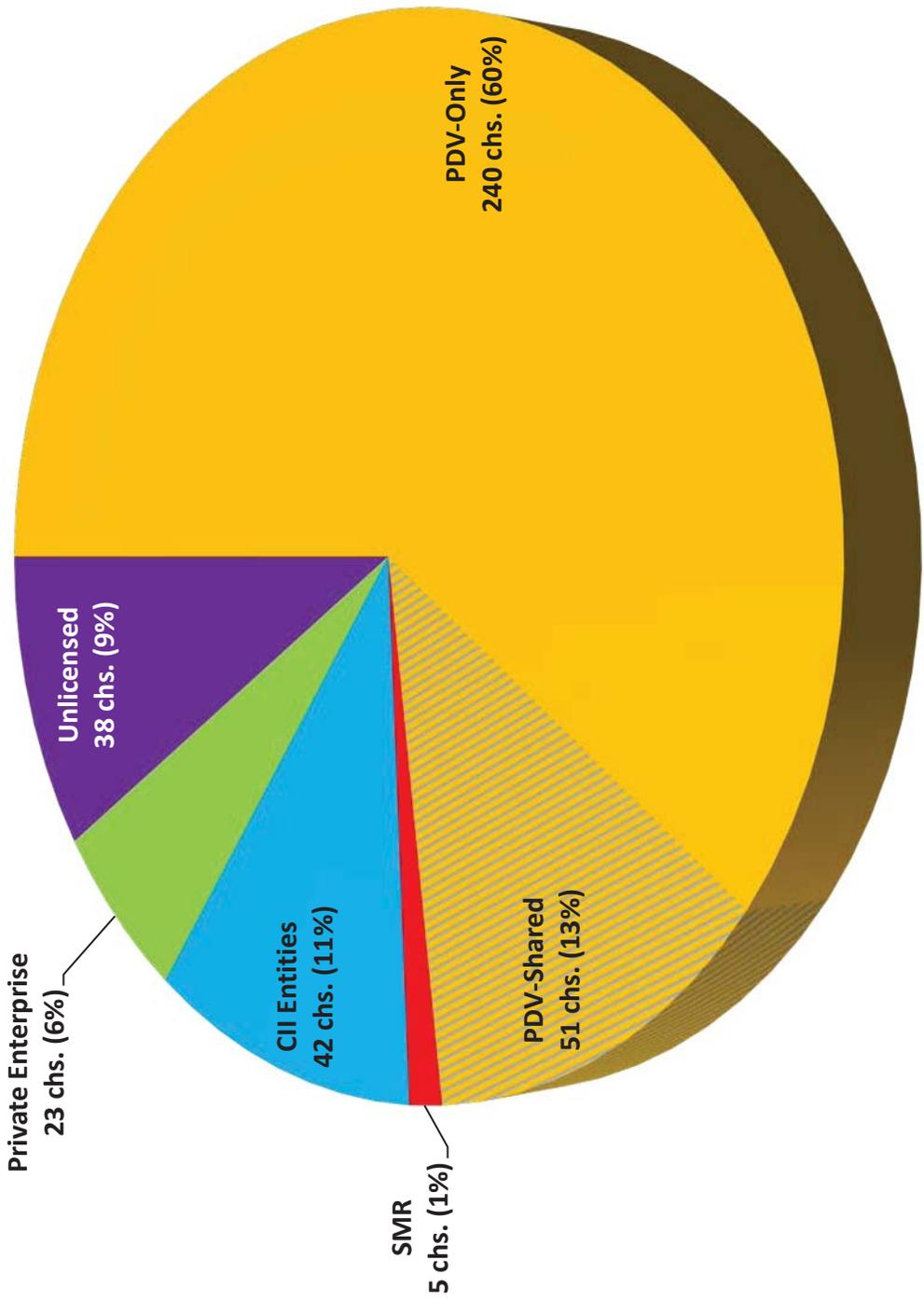
Denver - Licensee Categories



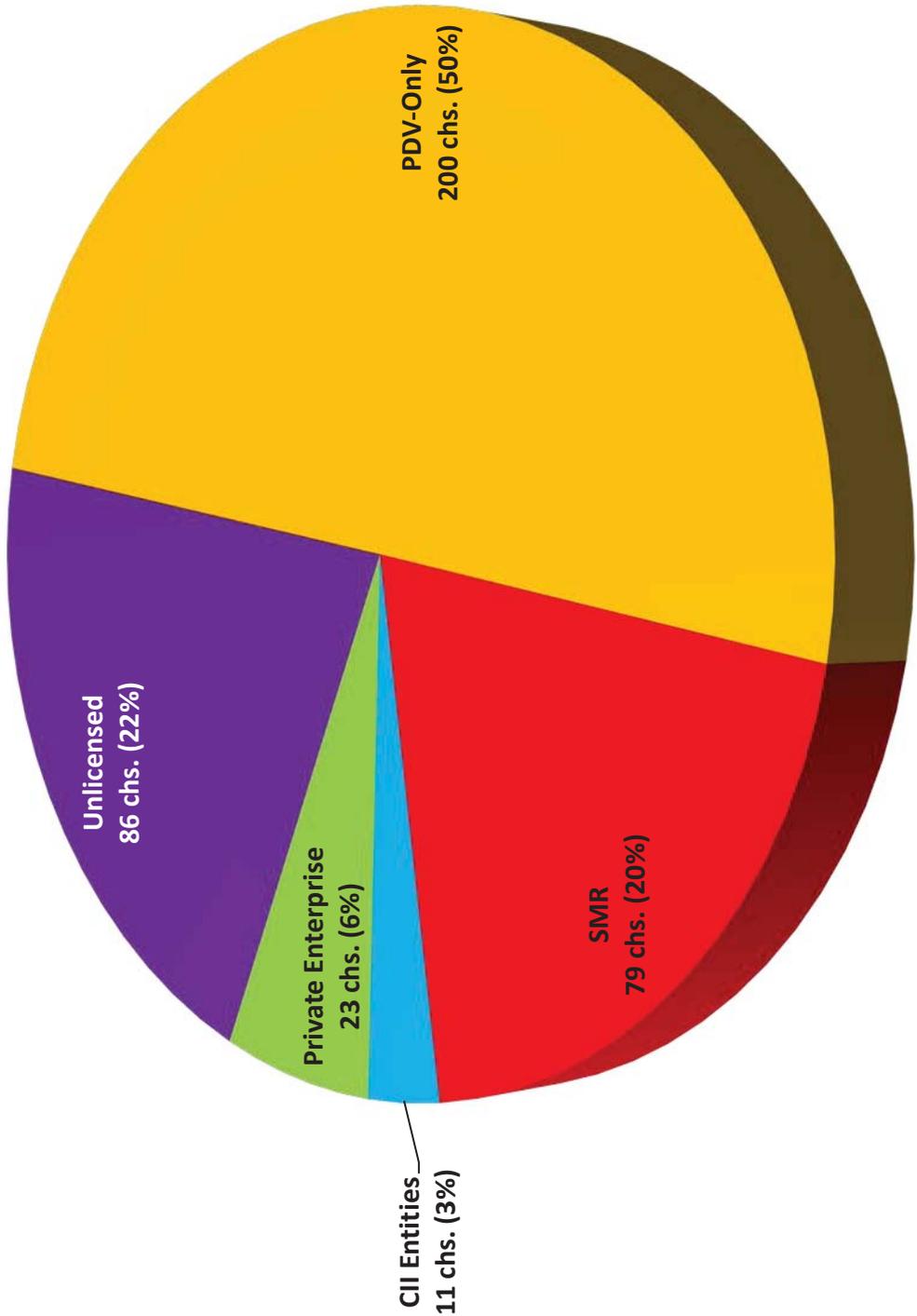
Pittsburgh - Licensee Categories



Charlotte - Licensee Categories



Portland - Licensee Categories



San Antonio - Licensee Categories

