

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)	
)	
Petition for Rulemaking of)	RM-11738
The Enterprise Wireless Alliance)	
And Pacific DataVision, Inc.)	
)	
Realignment of the)	
896-901/935-940 MHz Band)	
to Create a Private Enterprise)	
Broadband Allocation)	

To: The Commission

COMMENTS OF SENSUS USA INC.

Sensus USA Inc. on behalf of itself and its wholly owned subsidiary, Sensus Spectrum LLC (“Sensus”), respectfully submits these Comments regarding the Petition for Rulemaking of The Enterprise Wireless Alliance and Pacific DataVision, Inc. (“Petition”) in the above captioned proceeding.

INTRODUCTION AND SUMMARY

Sensus opposes the proposed realignment of the 900 MHz band as currently described in the Petition. Absent strong technical and other protections – to which the Petition does not commit – Sensus’ FlexNet™ radio systems likely would experience significant adjacent-channel interference. This would disrupt operations by critical infrastructure

industry (CII) utilities, requiring these utilities to add significant additional infrastructure in order to maintain the same level of service. This in turn would add substantial costs that have not been approved by state regulators, municipal authorities or other oversight bodies. The Petition does not identify the technology to be used, or any specific adjacent-channel protections.

Sensus is reviewing technical issues raised by the Petition. This appears to be one of the first times a broadband service has been proposed in close proximity to intensive wide-band (FlexNet™) and narrow-band use (B/ILT), making the technical issues complex. Sensus believes it is premature to fully respond to the questions posed by Public Notice (DA 14-1723, Nov 26, 2014) within the allotted comment period and that a rulemaking proceeding similarly would be premature. Sensus urges that, if it were to proceed on the Petition, the Commission should issue a Notice of Inquiry (NOI) in order to allow interested parties more time to study and present the technical issues. In the meantime, these Comments are general and will be supplemented with more technical detail in an NOI proceeding.

1. Background of Sensus

Sensus has an interest in this proceeding because its subsidiary, Sensus Spectrum LLC, holds the nationwide narrowband PCS (NPCS)

licenses, on NPCS channels N1, N2, N3, N4 and part of N5.¹ These NPCS channels start at 901/940 MHz and are immediately adjacent to the spectrum sought to be realigned by the Petition.

Sensus manufactures, sells, installs, services and operates its FlexNet™ system of smart grid and automatic metering infrastructure. FlexNet™ users are solely electric, natural gas and water distribution utilities – members of the critical infrastructure industry (CII). More than 15 million FlexNet™ devices are installed and operating on N1 - N5. FlexNet™ users range from some of the nation’s largest utilities, to small, rural water utilities, and are dispersed across the United States.

The distribution utilities that have deployed FlexNet™ systems use these systems to read meters in order to provide accurate and timely billing to customers and to allow customers to track and monitor their use of energy and water. In addition, the information from these systems allow the utilities

¹ Call signs KNKV201, KNKV202, KNKV203, KNKV204 and WQQW517. The Commission consented to FCC File Number 0006580788, an assignment of authorization application to partition and assign to Sensus additional geographic portions of KNKV205. In turn, after obtaining Commission approval, Sensus partitioned and assigned portions of these licenses to certain Sensus customers, over which these customers’ FlexNet™ systems are operated, including: Southern Company Services, Inc. (WQPG691, WQPG692, WQMQ541 and WQMQ542 on N1, N2, N3 and N4, respectively), Portland General Electric (WQPI333, WQPI334 on N1, N2, respectively), PECO Energy Company (WQUZ510, WQUZ511, WQPC228 and WQPC229 on N1, N2, N3 and N4, respectively) and ALLETE, Inc. d/b/a Minnesota Power (WQPY231 on N3). These utilities chose to purchase these licenses due to the vital importance of FlexNet™ to their CII operations.

to more efficiently operate their distribution networks and identify problems like outages on electric distribution systems or leaks in water systems.

State public service commissions, municipal authorities or others having oversight authority have reviewed and approved the expenditures for many FlexNet™ installations. If FlexNet™ users were required to add infrastructure to maintain the same level of service after experiencing harmful adjacent channel interference, the utilities would incur additional costs not approved by those with utility oversight authority.

2. The Petition and FCC Public Notice

The Petition asks the Commission to open a rulemaking proceeding to create a private enterprise broadband (PEBB) allocation on a 3X3 MHz broadband segment (898-901/937-940 MHz) and a narrowband allocation on a 2X2 MHz narrowband segment (896-898/935-937 MHz). The Petition proposes that Business/Industrial/Land Transportation (B/ILT) licensees be migrated out of the 3X3 broadband segment, to be shoe-horned among existing B/ILT licensees in the 2X2 narrowband segment. The Petition indicates that the PEBB would be targeted at CII companies.

The Wireless Telecommunications Bureau placed the Petition on public notice (PUBLIC NOTICE, DA 14-1723, Nov 26, 2014), seeking

comments on the Petition and asking commenters to consider certain questions, including:

- What need do B/ILT entities, particularly CII entities, have for broadband services that cannot be met by existing providers?
- What rule changes would be needed to prevent adjacent-channel interference?
- What are the estimated costs of relocation and will the narrowband segment accommodate relocating licensees?
- Could the broadband segment be aggregated by existing Commission processes, such as secondary markets rules?

3. Discussion with the Petitioners

Sensus recently became aware of the Petitioners' plans. On November 11, 2014, Sensus met with Pacific DataVision. In this meeting, and in several follow-up conference calls, the parties discussed technical issues. Pacific DataVision expressed a willingness to work with FlexNet™ users to mitigate issues, and to explore alternative approaches. Sensus appreciates the proactive approach taken by the Petitioners and is hopeful that a reasonable solution can be agreed upon. However, because of the possibility of serious disruption to ongoing CII radio operations, Sensus will maintain its opposition to the proposed realignment until such time as the parties agree on a solution or Sensus unilaterally proposes standards.

The Commission is authorized to allocate spectrum for flexible use (the Petition proposes an allocation for flexible use) so long as it does not cause harmful interference to incumbent licensees, like FlexNet™ users. 47 U.S.C. § 303(y). Commission rules define “harmful interference” as “interference that . . . seriously degrades, obstructs, or repeatedly interrupts a radio communications service operating in accordance with the Radio Regulations.” 47 C.F.R. § 1.907. Absent strong protections, the proposed band realignment likely would result in harmful interference to CII operations, imposing costs not approved by municipalities or regulators and would disrupt current CII operations.

COMMENTS

1. FlexNet™ Provides CII Services Over Wideband Frequencies

The Public Notice inquired about the need for broadband services for CII entities that cannot be met by existing providers. In response, this section of these Comments reviews the CII services provided by FlexNet™.

FlexNet™ utilizes 100 kHz channel pairs. The NPCS channels N1-N5 licensed to Sensus and other FlexNet™ users are set up for 50 kHz X 50 kHz operation. In addition, Sensus uses a portfolio of geographic area multiple address system (MAS) licenses that are aggregated to yield roughly the same 50 kHz X 50 kHz operation as the NPCS channels. FlexNet™

utilizes a point-to-multipoint architecture that is more robust and efficient than competing mesh systems operating over unlicensed spectrum.

Within the 50 kHz X 50 kHz channelization, FlexNet™ creates sub channels to provide the following AMI functions simultaneously:

- **Metering** – FlexNet’s continuous automatic metering reduces latency of information to be used for the other functions.

- **Alarms and Outage Management** – traditionally, an electric, natural gas or water utility would learn of an outage by phone calls from customers. FlexNet™ sounds alarms notifying of the existence of a fault or outage, and helps to identify the location, and assist with repair.

- **Demand Response** – FlexNet™ facilitates consumers’ demand response by signaling a peak usage condition and otherwise shifting usage to off-peak periods.

- **SCADA and Distribution Automation** – FlexNet’s SCADA provides the utility with control over transmission-level equipment, and FlexNet’s distribution automation provides control over distribution-level equipment.

- **Voltage Regulation** – During critical peak load periods, FlexNet™ can reduce the voltage delivered to appliances such as air conditioners.

- **Street Lighting** – FlexNet™ provides municipalities with the ability to control street lighting, down to turning off and on individual street lights. This has been shown to reduce crime and conserve energy.

2. Technical Specifications Would Be Needed

The Public Notice inquired as to what rule changes would be needed to prevent adjacent-channel interference. Sensus has invested in FCC licenses for exclusive-use, auctioned spectrum in order to reduce the number of base stations and other FlexNet™ infrastructure needed, and to allow utilities to add functions and services as their needs change. By utilizing licensed spectrum with legal protection from interference, FlexNet™ permits utilities to spend less money on infrastructure and to have flexibility in adding smart grid functions. With reduced entry-level cost, FlexNet™ allows smaller utilities to upgrade to smart grid functions where otherwise they might not do so.

FlexNet™ systems are designed and engineered for the current noise floor in the NPCS band in the markets where the systems are located. The test report of an LTE device – potentially to be used in Petitioners’ broadband service – indicates that if this device were operated in an adjacent channel, it would put a significant amount of noise into the 901-902 MHz band. An interference intrusion of this magnitude would constitute harmful

interference, reducing public interest benefits and forcing FlexNet™ users to add significant infrastructure in order to provide the same level of service. As noted, material additional costs imposed on existing FlexNet™ installations, due to harmful interference, would put FlexNet™ users over the costs approved by state commissions or municipalities.

Consequently, technical requirements or specifications are needed. Sensus will apprise the Commission in an NOI proceeding of the technical protections that would allow Sensus to drop its opposition.

3. Non-Technical Protections Are Needed

Should the Commission proceed with the Petition, Sensus requests non-technical protections, including a licensing requirement and a duty to mitigate harmful interference. The Commission should not let the PEBB band (if allocated) become another unlicensed band where anyone with supposedly conforming devices can plug and play. Sensus and other licensees have spent too much time hunting down baby monitors and other household devices causing interference – in some cases having to go door-to-door. If the PEBB band is allocated, each PEBB end user should be required to hold an FCC license or spectrum lease, so that the source of any harmful interference can be more readily identified, as well as the point of contact for the station operator.

Finally, in other contexts, the Commission has required that the provider of a new service protect incumbents in the licensed band and imposed a duty to mitigate harmful or unacceptable interference, including adjacent channel interference and intermodulation. The same should be done here in the event that the Commission proceeds with the Petition.

In conclusion, Sensus opposes the realignment proposal as currently crafted but would participate in a Notice of Inquiry proceeding, work with Pacific DataVision in attempting to reach a consensus, and tell the Commission the conditions under which Sensus would drop its opposition.

Respectfully submitted,

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