

Before the
FEDERAL COMMUNICATIONS COMMISSION

Washington, D.C. 20554

In the Matter of)	
)	
Fostering Innovation and Investment in the Wireless Communications Market)	GN Docket No. 09-157
)	
A National Broadband Plan For Our Future)	GN Docket No. 09-51

**COMMENTS OF
KEY BRIDGE GLOBAL LLC**

SUMMARY

Key Bridge is a Virginia company and candidate for FCC authorization to operate a TV bands database under EC Docket 04-186. We have also developed an Internet-enabled spectrum sensor that enables remote spectrum audit and signal analysis.

- The FCC can streamline secondary markets by simplifying the process for transfer of control
- More comprehensive spectrum data provided by the FCC would benefit the public and Industry
- Database records should be regularly confirmed with real-world measurements
- Key Bridge has fielded technology that provides for automated, wide-area spectrum monitoring

32. SECONDARY SPECTRUM MARKETS

Should the Commission take additional steps to facilitate the development of a more robust and efficient secondary market that would increase the availability of unused or unneeded spectrum capacity for prospective users and new wireless technologies?

Key Bridge believes that Industry is generally not aware that spectrum use rights may be acquired on any secondary market, but rather assumes they must be assigned directly by the FCC.

Regardless, the fact remains that radio spectrum is a finite, heavily regulated resource that forms the core around which wireless businesses are built; spectrum acquisition is typically a one-time event early in a wireless business' life cycle. While any secondary market would thus be characterized by low transaction volume, this does not mean such a market could not efficiently match spectrum resources to their most economic employment.

Radio spectrum is public property and made available for private use by lease or license. Any market for spectrum use rights must therefore resemble a commodities or futures exchange where rights are transacted but not the underlying property.

The FCC can streamline secondary spectrum markets by simplifying transfer of control.

A factor hindering secondary markets is the inherent friction of a spectrum transaction; transferring control presently requires contracts, lawyers, FCC approval and time. Public information about any particular frequency allocation also appears limited to basic details like frequencies, geographic coverage, transmit power limitations, etc. Prospective sellers or buyers must collect other necessary and important information like adjacent transmitters, propagation characteristics and noise floor on their own and at their own expense.

If the Government wishes to see a robust market take form that matches available spectrum with its most economic employment, the Commission might consider methods to reduce barriers for convenient price discovery and transaction liquidity. An open market could be further assisted by the official sanction of a transaction clearinghouse to simplify the transfer of control between sellers and buyers.

43. SPECTRUM SHARING DATABASE

In order to encourage spectrum sharing, would it be helpful to have a database that provides information regarding licensee contact information, as well as spectrum use and availability by geographic area and frequency band? For example, would it be useful to have information as to whether a transmitter operates continuously or infrequently, or may provide coverage only over a portion of the licensed service area?

The FCC provides a tremendous public service by making portions of its licensing data available in raw format¹. While brokerages may provide buyer/seller matchmaking, substantive open markets for spectrum rights that discover reliable pricing like the Chicago Board Options Exchange or the New York Mercantile Exchange are nascent, if non-existent. It should therefore surprise no one that Industry has not yet bothered to translate the FCC's raw data into public information services: there is not yet an economic incentive to build or deliver such services and limited commercial interest in their consumption.

The Commission should know that if a customer exists and is ready to pay for detailed spectrum information, Industry will respond. TV White Spaces is a good example of this principle: certain companies presently wish to know where unlicensed spectrum may be available and to assess the

¹ CDBS, ULS, COALS, IBFS database contents are all available for download with updates every 24 hours.

suitability of that spectrum for wireless broadband services. Key Bridge developed and provides value-added TV bands spectrum analysis based on the FCC-provided data mentioned above in response to this demand.

The Commission is well aware, however, that business-to-business transactions are proprietary and cannot satisfy the public's interest to observe, review and study general spectrum use. Unencumbered data and fair market pricing is not possible in an environment where information may be hidden behind commercial contracts. It would therefore

Data from private transactions is not available for public use.

A baseline of more comprehensive data provided by the FCC would benefit the public and Industry.

greatly benefit the public were the Commission to make available spectrum information beyond the raw data already provided, such as geographic coverage, noise floor, its suitability wireless services and any encumbrances spectrum allocations may have. Such contextual information would enhance the ability of private citizens and academia to conduct research and provide educated contributions to spectrum policy discussions. It could also provide greater transparency and pricing efficiency in secondary spectrum markets.

47. SPECTRUM SHARING METHODS

Are there approaches that can promote the efficient use of spectrum in other ways? For example, what role should certified frequency coordinators play in promoting efficient use? Are there steps we could take to regularly monitor, measure, and report spectrum use? If so, what specifically should we be measuring and how should this information be reported?

For example, we envision that the Commission could develop a low-cost standard package of sensors and measurement systems that could be deployed throughout the country. Together, these frequency monitoring sensors would create a real-time spectrum monitoring network, similar to the ubiquitous weather stations atop schools and other buildings that make up local weather networks. The data collected could be useful for the Commission and interested parties for a variety of purposes, such as identifying frequency bands that are underutilized. It could also be used to measure the "noise floor" in an area.

A comprehensive audit of US frequency allocation and deployment is a great method to encourage wireless innovation and the use of fallow spectrum.

Key Bridge believes that a database audit of active licenses could be performed for all regulated frequencies ² and the results made available as a public Internet resource, both in raw format like the other FCC databases or in a user-friendly web portal. We say this because we have already implemented such a system for the Television broadcast bands. An extension of our system to other frequencies is a straightforward process, and the Commission should not be intimidated by the task.

A problem with relying exclusively on computer records is they may not fully reflect real world spectrum use. For example: a low duty-cycle occasional use transmitter might appear as a full time allocation. To gain a more complete operating picture Key Bridge encourages the Commission to

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Key Bridge has a fielded solution which provides detailed spectrum occupancy.

make regular, long-term, real-world measurements of licensed and unlicensed spectrum use wherever possible. Such empirical measurements could be incorporated and then regularly synchronized with the Commission's database records. The data could also serve to supplement and make more accurate calculated signal strength estimate and geographic coverage maps.

Real-world measurements should address long-range, omni-directional frequencies to control cost. Key Bridge recommends the Commission adopt a pragmatic, hybrid approach to spectrum inventory and measurement with combined database and measured data below 2,500 MHz.

² From 9 kHz to 300 GHz

Key Bridge has developed a low cost distributed spectrum monitoring solution that may address this requirement. We are presently testing and measuring spectrum use in the Washington DC metro area.

CONCLUSION

- The FCC can streamline secondary markets by simplifying the process for transfer of control
- More comprehensive spectrum data provided by the FCC would benefit the public and Industry
- Database records should be regularly confirmed with real-world measurements
- Key Bridge has fielded technology that provides for automated, wide-area spectrum monitoring

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