

**CSMAC Measurement/Quantification Subcommittee
Use of General Occupancy Measurements
And
Quantification of Federal Spectrum Use**

Potential New Questions

February 18, 2015

Objective

- What additional spectrum occupancy measurement related questions should the CSMAC address?

Question 1 – Dynamic Sharing

Spectrum occupancy measurements could be used to facilitate dynamic (minutes/hours) spectrum sharing in conjunction with a database. There are different architectures (sensing in the devices, sensing along the entrant boundaries, sensing along the incumbent boundaries, etc) that potentially band and location specific. For example, DFS is a sensing on the device approach that is deployed worldwide. What are the technical and policy issues that proponents of these systems should address to enable rapid adoption? What are the strengths and weakness of measurement-based spectrum sharing approaches?

Question 2 – Operational Measurements

How should propagation measurements be used operationally in future spectrum sharing approaches? For example, measurements of off-the-air signals can be used to estimate dynamic atmospheric ducting phenomena. Foliage changes or estimate number of users could also be continually estimated and fed into databases. This information could avoid the use of worse case propagation loss and entrant usage assumptions in database spectrum sharing approaches.

Question 3 – Propagation Measurements

What propagation measurements should be made to enhance spectrum sharing? Propagation models have a huge impact on spectrum sharing efficiency. While there has been extensive propagation measurements made over the years, there was large disagreement during the previous CSMAC WGs on what propagation models to use. Should there be improved general models, or site specific measurements? Does work need to be done on air-ground or ground to ground models?

Question 4 – Enforcement Level of Effort

What level of effort is needed to support enforcement using measurements in future spectrum sharing approaches? Would a few 'go-to measurement teams' be enough (present approach), or is a dedicated (expensive) fixed, distributed spectrum measurement system needed/useful?