

Technology Primer: Overview of CBRS

Instructor Led Live Virtual Class | Duration: 0.5 Day | Course Number: TPR1039

Exponentially rising data traffic, scarcity of spectrum, and expectations of enhanced user experience including 1Gbps data rates are driving operators to explore the use of shared spectrums such as CBRS – Citizens Broadband Radio Service. Operators can deploy LTE networks in 3.5 GHz CBRS spectrum using LAA. CBRS can be used in various business models including traditional mobile operators and new operators. CBRS also supports Private LTE networks. The course provides a high-level overview of the CBRS system, motivation for CBRS deployment, network architecture, network operation and deployment use cases.

Intended Audience

A high-level technical overview to personnel involved in product management, marketing, planning, design, engineering, and operations.

Learning Objectives

After completing this course, the student will be able to:

- Define CBRS
- Differentiate among Incumbent Access (IA), Priority Access (PA) and General Authorized Access (GAA)
- Give examples of business models and use cases for CBRS
- Sketch the architecture of a CBRS-based network
- Describe the roles of a CBRS Device (CBSD), Spectrum Access System (SAS), and Environment Sensing Capability (ESC)
- Step through the life of a CBSD and UE in a CBRS deployment

Suggested Prerequisite

- LTE Overview (eLearning)
- Technology Primer: Licensed Assisted Access (LAA)

Course Outline

1. CBRS Essentials

- 1.1. Types of spectrum
- 1.2. Definition of CBRS
- 1.3. Three-tier access model (IA, PA, GAA)
- 1.4. CBRS band plan
- 1.5. Use cases
- 1.6. Business models (e.g., Private LTE)
- 1.7. Key building blocks

2. CBRS System Architecture

- 2.1. End-to-end architecture
- 2.2. CBSD, LAA, and eLAA
- 2.3. CBRS anchor and non-CBRS anchor
- 2.4. CBSD categories A and B
- 2.5. End user devices
- 2.6. SAS
- 2.7. ESC
- 2.8. Proxy

3. CBRS Operations

- 3.1. Overview of operations
- 3.2. Security mechanisms
- 3.3. Registration
- 3.4. Spectrum enquiry
- 3.5. Grant reception
- 3.6. LAA data transmission using the CBRS spectrum
- 3.7. Grant suspension and termination
- 3.8. Inter-SAS communications

4. Putting It All Together

- 4.1. CBRS in a nutshell
- 4.2. Status of the industry and regulations