eLAA for the “CBRS” 3.5GHz band in the United States

-

Motivation document

RP-162124

Background

- On April 21st 2015, the FCC released a Report and Order (R&O) and Second Further Notice of Proposed Rulemaking (Second FNPRM) to establish new rules for commercial use of the 3550-3700 MHz band.

- This framework creates a contiguous 150 MHz block at 3550-3700 MHz (3.5 GHz) for mobile broadband that FCC calls "Citizens Broadband Radio Service (CBRS)"
  - Regulated under Part 96 of FCC's Rules
  - On May 2nd 2016, a second R&O and Order on Reconsideration was released by FCC to finalize the rules.
-
- Standardization of a new stand-alone LTE TDD band has been dealt with by a previous Work Item, which has resulted in the definition of Band 48.

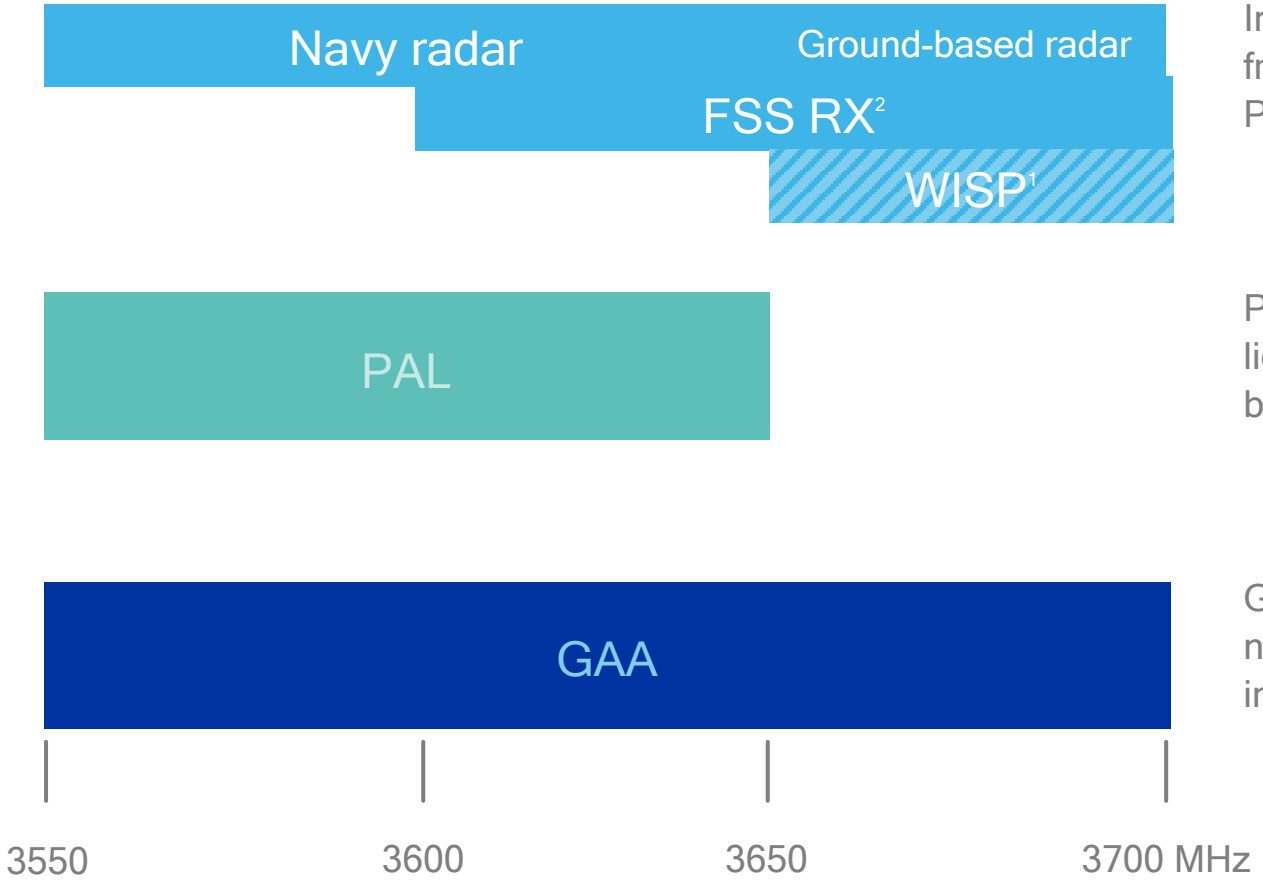
- Enabling usage of LAA/eLAA in this band may also be needed by some operators

The 3-tiers

Tier 1
Incumbents

Tier 2
Priority Access Licenses (PAL)

Tier 3
General Authorized Access (GAA)



Incumbents are protected from interference from PAL and GAA

PAL has priority over GAA, licensed via auction, 10 MHz blocks, up to 7 licenses

GAA can use any spectrum not used, yields to PAL and incumbents

1 Wireless ISP transitioning from incumbent to PAL/GAA after 5 years; 2 Fixed satellite service - receiving only; 3) Citizen Broadband Radio Service (CBRS)

GAA Coexistence

SAS

- **Server**
- Incumbent and PAL protection
- GAA spectrum partitioning for coexistence of different coexistence groups
- Generally inter-technology

CXM

- **Coexistence manager**
- Handles spectrum allocation to different GAA deployments/networks within each coexistence group (there is one “coexistence group” per technology, i.e. one CXM for LTE)
- Acts mainly as a clearinghouse for exchange of co-existence related information
- A coexistence groups is is defined as a set of CBSDs (end devices) that mutually handle interference within a common frequency assignment without further SAS oversight.

CBSD

- **End Device**
- Provides relevant coexistence info to SAS/CXM
- Selects channel and Tx power based on SAS/CXM inputs and local RF measurements

Confidential and Proprietary - Qualcomm

GAA Coexistence

SAS

WINN-Forum works on this area

- Server
- Incumbent and PAL protection
- GAA spectrum partitioning for coexistence of different coexistence groups
- Generally inter-technology

CXM

CBRS Alliance works on this area

- Coexistence manager
- Handles spectrum allocation to different GAA deployments/networks within each coexistence group (there is one “coexistence group” per technology, i.e. one CXM for LTE)
- Acts mainly as a clearinghouse for exchange of co-existence related information
- A coexistence groups is is defined as a set of CBSDs (end devices) that mutually handle interference within a common frequency assignment without further SAS oversight.

CBSD

3GPP should cover the band definition part

- End Device
- Provides relevant coexistence info to SAS/CXM
- Selects channel and Tx power based on SAS/CXM inputs and local RF measurements

Confidential and Proprietary - Qualcomm

Proposed Work Item

- Enable LAA/eLAA (“LTE Frame Structure 3”) over the CBRS band

- This is a RAN4 project as usual
  - Other aspects as covered in CBRS Alliance and WINN Forum as described in the previous slides
  - As documented also by the LSs received by this meeting

- Proposed RAN4 Work Item in RP-162125