

# Receiver Performance Standards: A Critical Element of the Spectrum Management Equation

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March 12, 2012

# The Need for Receiver Performance Standards

- The demand for spectrum has never been greater; this requires much greater efficiency on the part of all users of the radio spectrum
- Clarity and certainty are required for new investment in wireless
  - Essential foundation for innovation
  - Allow new competitors to enter the market
  - Result in consumers having greater choices, lower costs and improved service offerings
- Clearly defined receiver performance standards are a critical ingredient in enabling spectrum to be efficiently deployed and consumer benefits to be realized

# Oobe and Overload: Two Sides of the Equation

Transmitter



Out of band emissions (OOBE) from transmitter, when not properly managed, can disrupt operations in neighboring bands



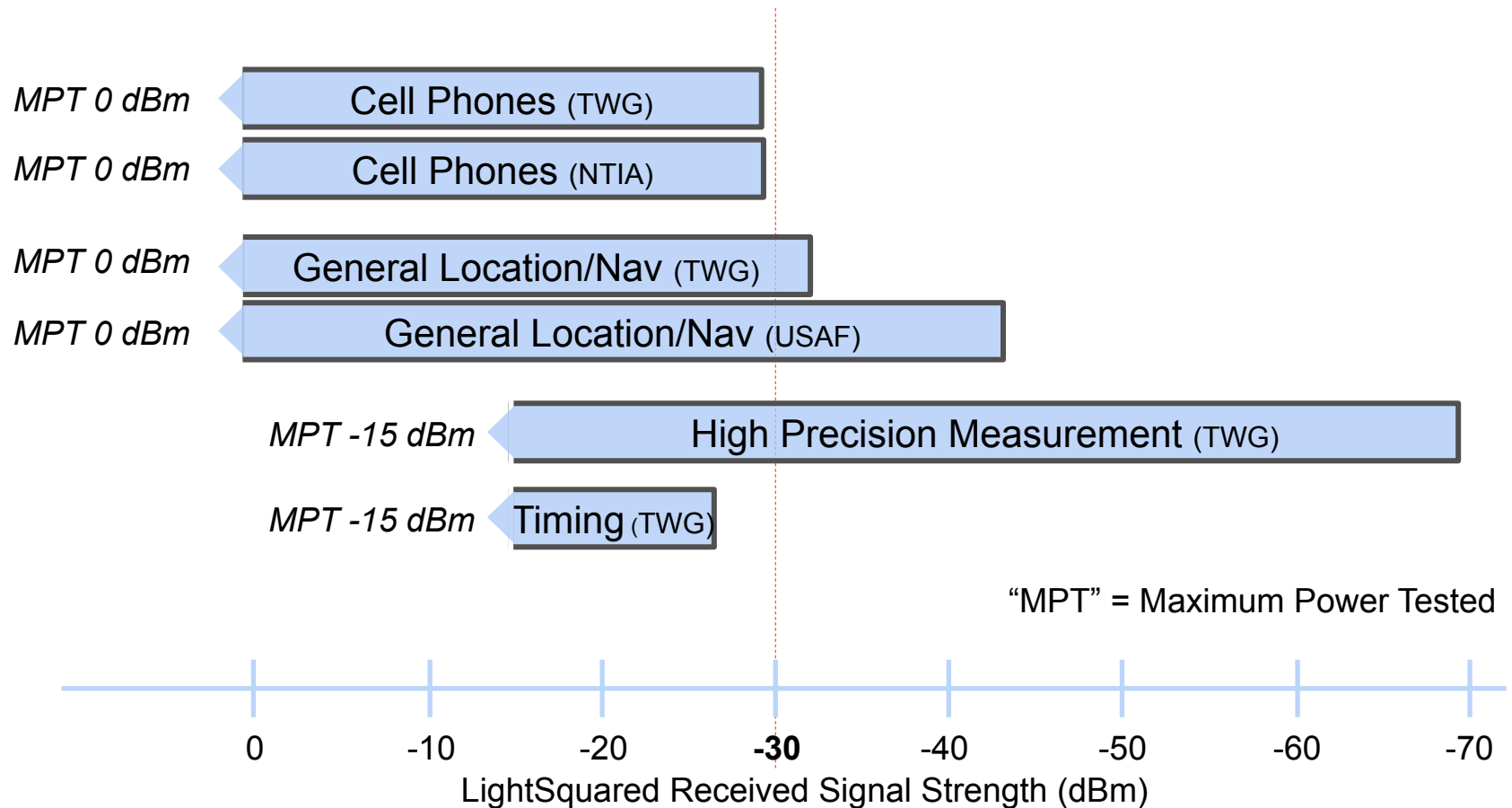
Properly managed Oobe is one component to ensuring compatibility; it is under control of the operator and is regulated by the FCC

Receiver



RF front-end design of receivers used in "Band B" is generally not regulated, nor is it under the control of the "Band A" licensee. Overly broad receiver front-ends can cause incompatibility with licensed adjacent-band operations.

# Testing Shows Wide Variations in Existing Receiver Design Specifications and Lack of Accepted Measurement Criteria

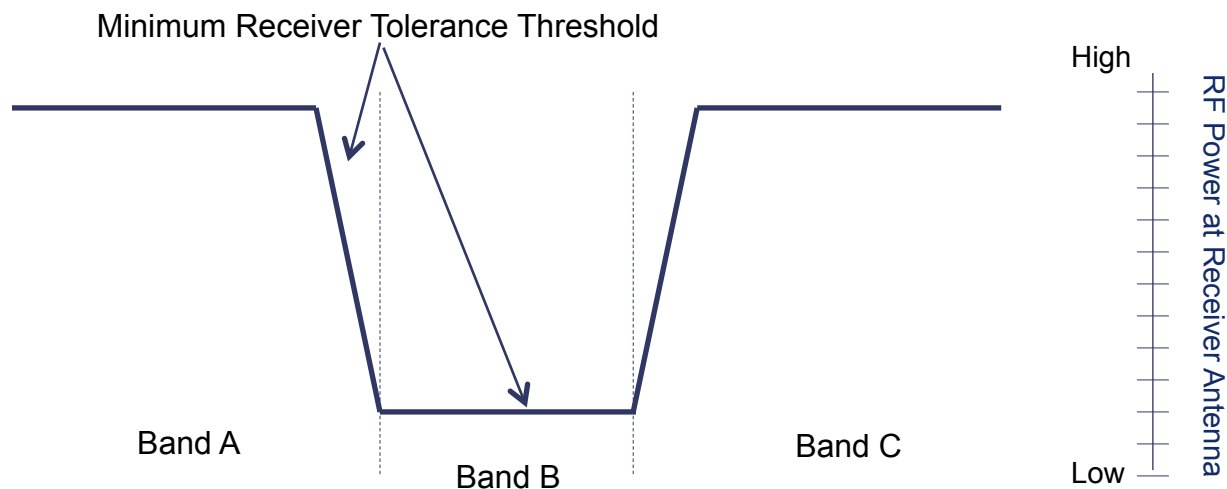


*Above graphics depict 1 dB C/N<sub>0</sub>, which is used as an illustrative measurement reference for comparison purposes only; it is not a definition of harmful interference*

# Performance Standards, Not Receiver Specifications

## Standards Would:

- Define minimum receiver tolerance as a function of adjacent band power at specific frequencies
- Provide flexibility for manufacturers to determine how tolerance for adjacent band power is achieved
- Create a going forward approach that would not impact existing receivers
- Reflect state of the art technological capabilities with respect to available filtering and receiver design, not just present spectrum occupancy in the neighboring bands



- Allow for intended operation, while being sufficiently tight to facilitate technological advances in adjacent bands

# Performance Standards are Integral to Responsible Spectrum Management

- Device manufacturers need to adhere to responsible spectrum management practices
  - Consumers should have greater certainty regarding device performance relative to its operational environment
- Sensible receiver performance standards are a logical solution going forward
- A well defined environment will allow regulators to allocate spectrum for new uses with less difficulty
- Such an environment also provides assurances necessary for licensees to invest in new technologies and protect consumers from premature device obsolescence
- Performance standards need not establish a new right to “interference protection,” but could simply ensure receiver reliability for consumers