

700/800 MHz RPC ANNUAL WORKSHOP AND CAPRAD TRAINING

PRE-COORDINATION STANDARDS

AUGUST 18, 2015



OBJECTIVE

To develop a standard for spectrum coordination for all RPC regions for 700 MHz and 800 MHz that

- reflects current best practices
- uses standard based propagation models
- is technology neutral
- can be implemented by all regions for use in updated plans

Online Survey

- Sent out in mid 2013
- Varied responses
- Regional differences noted
- Many inconsistencies
- **NO STANDARD APPROACH**

700 MHZ

Regional differences significant

- Propagation models varied from R6602, Okumura, Longley Rice, to Hybrids
- No standard levels for Co to Co channel or Adjacent channels
- Impact to adjacent regional review in many areas
- Prediction tool variances
- Most regions not having a defined calibration site or model

Proposed 700 MHz Coordination Parameters

Propagation Model

- Longley Rice 50/50/50
- Rx antenna height: 1.5 meters AGL
- Calculation distance: 150km minimum
- Clutter Attenuation: Use TSB88C or latest
- Ground Type: Average
- Radio Climate: Use appropriate selection or Continental Temperate as a default
- Antenna pattern used shall be the proposed antenna plus any mechanical tilts

Proposed 700 MHz Coordination Parameters

Coverage Prediction

- Service Coverage Level: 40 dBu / -94 dBm

Demonstration of Responsible RF

- 80 % of the 52dBu / -82 dBm is within the defined service area + 8km buffer

Proposed 700 MHz Coordination Parameters

Interference Levels:

Baseline co-channel level: 15 dBu / -119 dBm

- Base line level shall be de-rated to account for adjacent coupled power ratio effects consistent with the National Coordinating Committee recommendations of July 2002
 - 40 dB ACCPR: 55 dBu / -79dBm
 - 65 dB ACCPR: 80 dBu / -54 dBm

National Coordination Committee, "Pre –Assignment Rules and Recommendations," July 2002 Adjacent Channel Coupled Power Ratio Values.

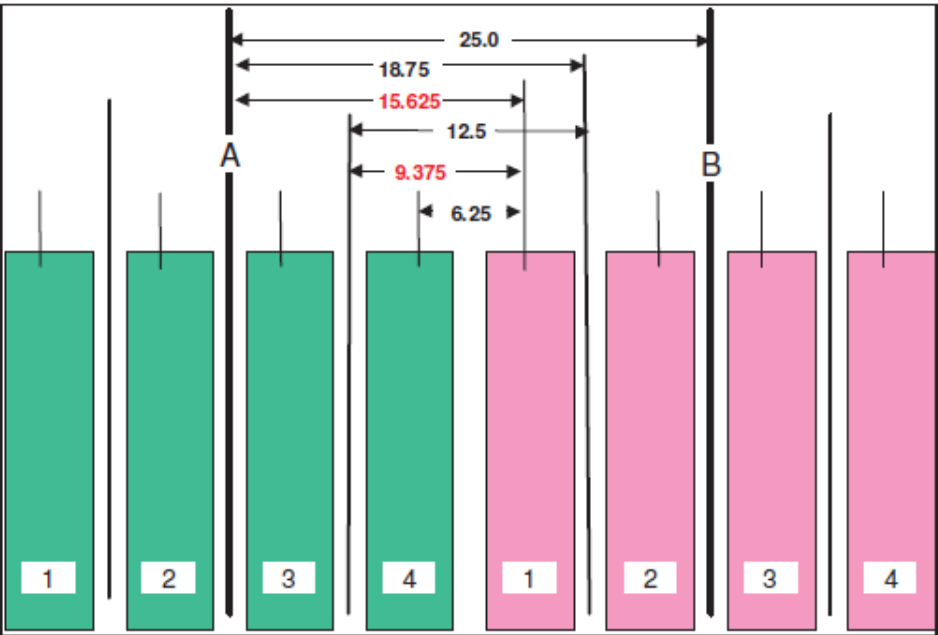


Figure 13, Potential Frequency Separations¹⁴

Table 9, Adjacent-Channel Coupled Power Ratio Values¹⁴

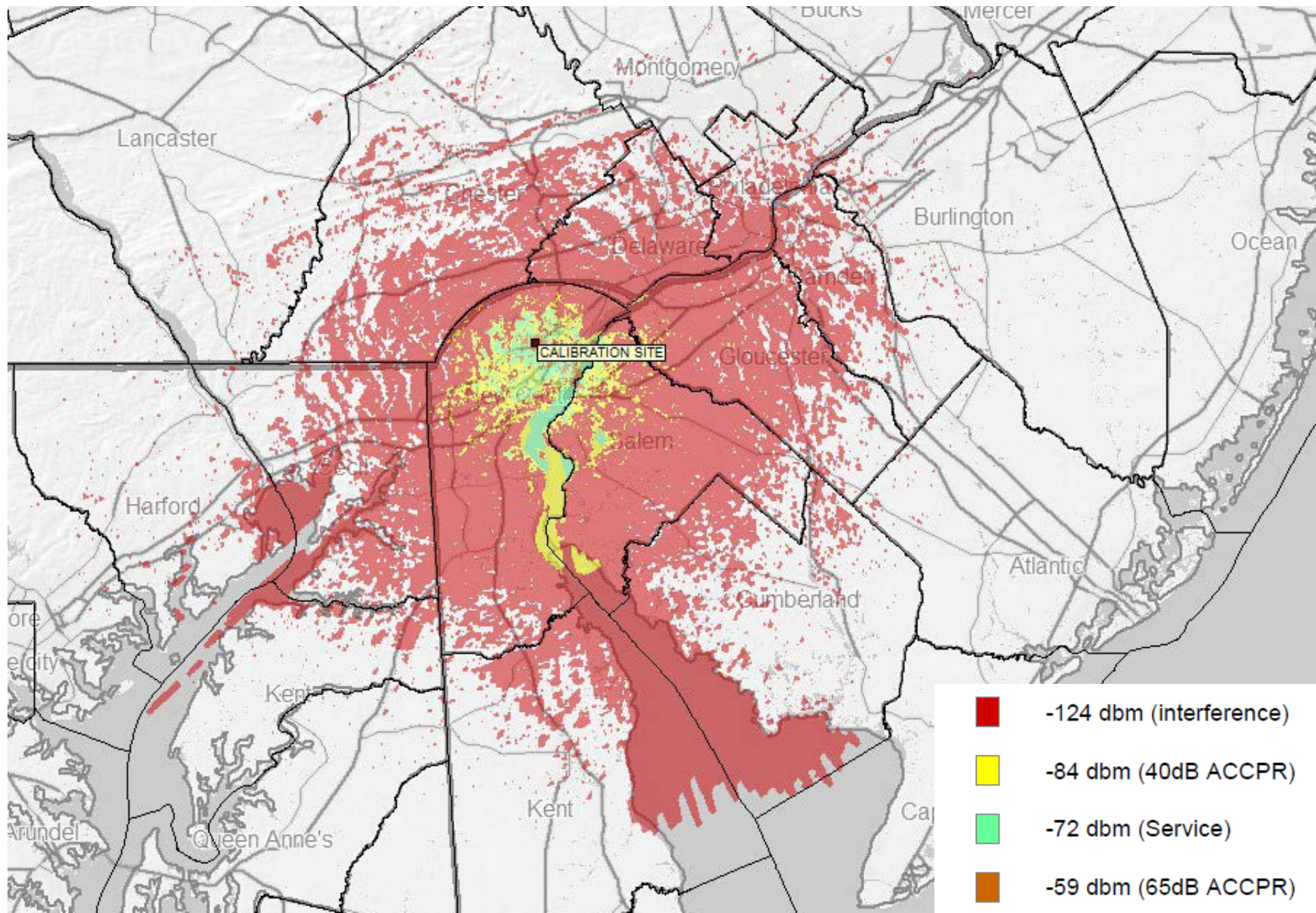
Case	Spacing	ACCPR
25 kHz to 25 kHz	25 kHz	65 dB
25 kHz to 12.5 kHz	18.75 kHz	65 dB
25 kHz to 6.25 kHz	15.625 kHz	40 dB
12.5 kHz to 12.5 kHz	12.5 kHz	65 dB
12.5 kHz to 6.25 kHz	9.375 kHz	40 dB
6.25 kHz to 6.25 kHz	6.25 kHz	65 dB

Proposed 700 MHz Coordination Parameters

Calibration Site

- Each region to develop a “Calibration site” or multiple “Calibration Sites” depending on varying terrain
- Calibration site parameters to be identified along with coverage prediction showing distances
- Region to provide all parameters, omni antenna, heights, erp etc....
- Prediction levels: (service level/interference levels)
- Applicants as part of their submission must complete a calibration propagation showing general agreement to the Region’s plot in the plan

SAMPLE CALIBRATION PLOT with Present RPC8 values



800 MHZ NPSPAC

Regional parameters generally consistent

- Propagation model mostly Okumura-HATA-Davidson
- Standard levels generally for Co to Co channel or Adjacent channels
- Prediction tool variances present among RF software tools
- Most regions not having a defined calibration site
- Differences in modulation/RF bandwidths generally NOT taken into effect

Proposed 800 MHz NPSPAC Coordination Parameters

Foundations that are to be stressed

**Systems licensable using 6.25Khz, 12.5 Khz, and 25 Khz channel widths

**Maximum emission bandwidth shall be that equivalent to 4 Khz deviation, e.g. 16K0

Proposed 800 MHz NPSPAC Coordination Parameters

Primary Propagation Model

- OKUMURA-HATA-DAVIDSON
- Rx antenna height : 1.5 meters AGL
- Calculation distance: 150km minimum
- Environment: Open
- Antenna pattern used shall be the proposed antenna plus any mechanical tilts.

Alternate Propagation Model

- Longley Rice 50/50/50
- Rx antenna height :1.5 meters AGL
- Calculation distance: 150km minimum
- Clutter Attenuation: Use TSB88C or latest
- Ground Type: Average
- Radio Climate: use appropriate selection or Continental Temperate as a default
- Antenna pattern used shall be the proposed antenna plus any mechanical tilts.

Proposed 800 MHz NPSPAC Coordination Parameters

Calibration Site

- Each region to develop a “Calibration site” or multiple “Calibration Sites” depending on varying terrain
- Calibration site parameters to be identified in plan and in CAPRAD along with coverage prediction showing distances
- Region to provide all parameters, omni antenna, heights, erp etc....
- Prediction levels: (service level/interference levels)
- Applicants as part of their submission must complete a calibration propagation showing general agreement to the Region’s plot in the plan

Proposed 800 MHz NPSPAC Coordination Parameters

Coverage Prediction

- Service Coverage Level: 40 dBu / -94 dBm

Demonstration of Responsible RF

- 80 % of the 52dBu / -82 dBm is within the defined service area + 8km buffer

Proposed 800 MHz NPSPAC Coordination Parameters

Interference Levels

Baseline co-channel level: 15 dBu / -119 dBm

Adjacent Channel Cases:

1. 12.5 Khz proposed against adjacent 12.5 Khz adjacent users
 - 40dBu /-94dBm shall not overlap adjacent incumbents' 40 dBu/-94 dBm
2. 25 Khz proposed against adjacent users regardless of adjacent user channel widths
 - 25 dBu / -109 dBm shall not overlap adjacent incumbents' 40 dBu/-94 dBm

Next Steps?

