ESC-DPA Coverage Methodology

11-15-2018

Irregular Terrain Model P2P Parameters

- Dielectric Constant: 81
- Conductivity: 5.0
- Surface Refractivity: 350
- Frequency: 3600 MHz
- Radio Climate: Maritime Temperate over Sea (7)
- Mode of Variability: 12
- Confidence: 50%
- Polarization: Vertical
- Radar Transmission Height: 50m

Input Parameters

- 210 dB used as the path loss threshold
  - Radar EIRP (121 dBm/MHz) – ESC detection threshold (-89 dBm/MHz)
- E-DPA.kml
- For locations inside the DPA and less than 75 km from the shore, use 95% Reliability to calculate path loss.
  - 75km kml files provided by NTIA
- For locations inside the DPA and greater than 75 km from the shore, use 50% Reliability to calculate path loss
- Example DPA grid spacing
  - Points spaced 1km along the DPA edge and a 1km x 1km grid

ESC Input Parameters

- Sensor Name
- Latitude (decimal degrees)
- Longitude (decimal degrees)
- Antenna Height (AGL) (meters)
- Antenna Gain (dBi)
- Cable Loss (dB)
- Antenna Horizontal Beam width (degrees)
- Antenna Vertical Beam width (degrees)
- Antenna Azimuth (0° is North)
- Antenna Downtilt
- ESC-DPA Coverage Combinations

ESC-DPA Coverage Combinations (Logic)

- Calculate the ESC-DPA coverage for each set of ESCs.
  - For Example:
    - For each row, all ESC Sensor(s) need to be online.
    - A detection by any one of the sensor(s) activates the DPA.

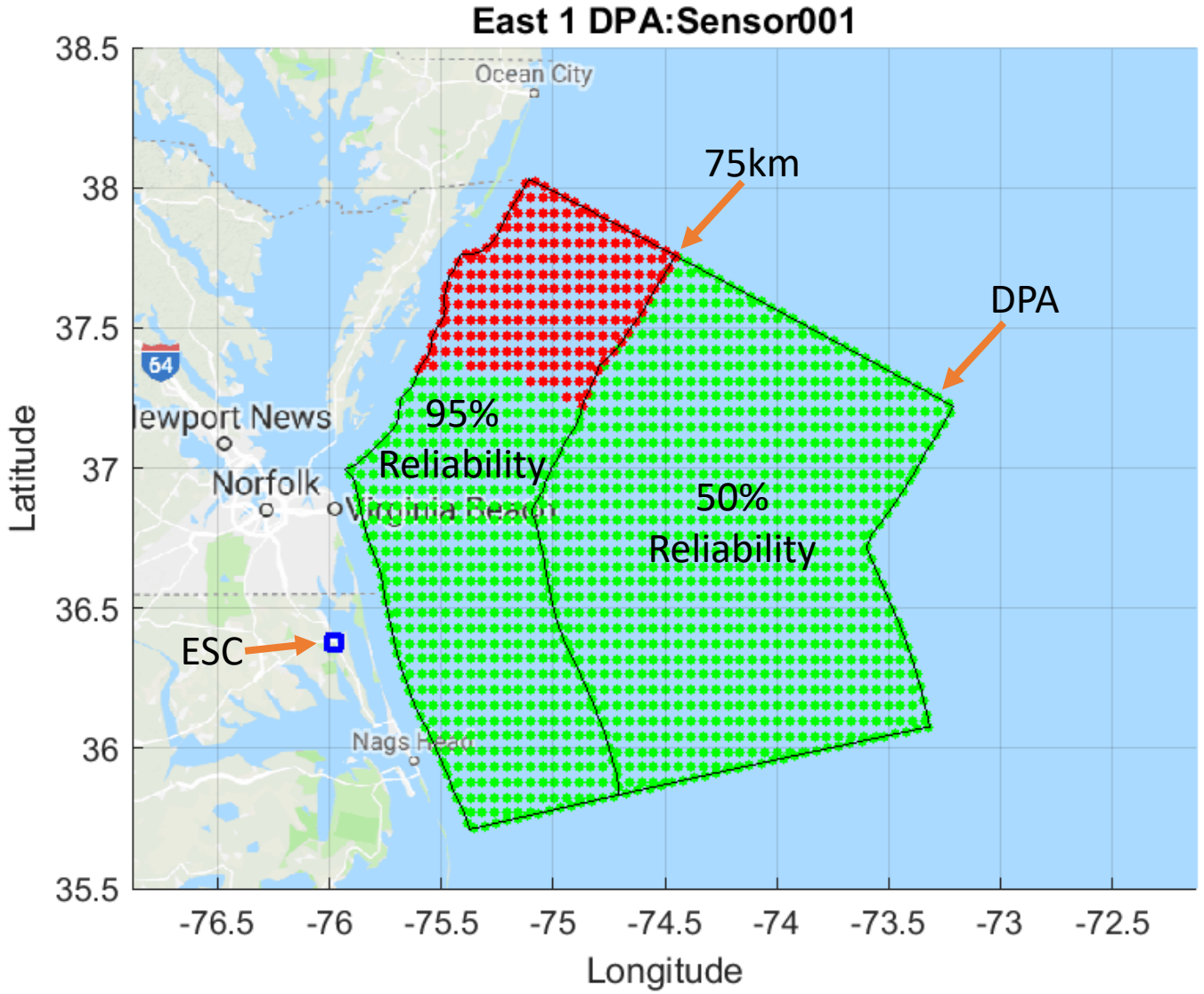
DPA Name	Sensor Name		
East DPA 1	Sensor #001		
East DPA 1	Sensor #002	Sensor #003	
East DPA 1	Sensor #004	Sensor #005	Sensor #006

Example Calculations

DPA Name	Sensor Name	
East DPA 1	Sensor001	Sensor002
East DPA 1	Sensor001	Sensor003

Site Name	Latitude	Longitude	ESC Antenna Height	ESC Antenna Azimuth	ESC Antenna Downtilt	Horizontal Antenna Beamwidth	Horizontal Antenna Beamwidth	Antenna Gain
Sensor001	36.38	-75.98	20	90	0	120	60	5
Sensor002	37.94	-75.54	20	120	0	120	60	5
Sensor003	37.18	-75.96	20	90	0	120	60	5

Single Sensor DPA Coverage



Combination DPA Coverage

DPA Name	Sensor Name	
East DPA 1	Sensor001	Sensor002
East DPA 1	Sensor001	Sensor003