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APPENDICES Vol. 2

A-11 Point Mugu Sea Range Technical Parameters and Simulation Results**Characteristics and Assumptions specific to the Point Mugu Sea Range**

Laguna Peak #1

Aperture = 20 feet

Laguna peak #2

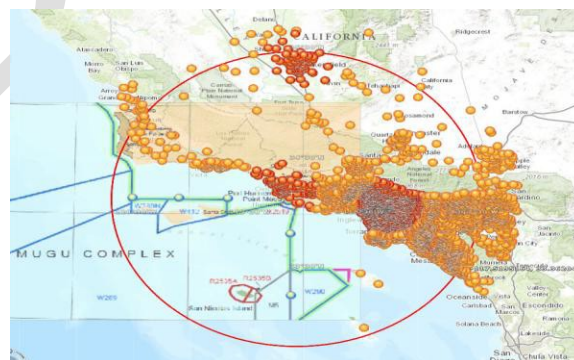
Aperture = 20 feet

-37 dBi gain for 1755-1850 MHz

- Covering Offshore ranges W-289N, W-289E, W-289W, W-292E,
W-292W, W-412, W-532N, W-532E, W532S, W-537, R-2519,
R-2535A, R-2535B

- Altitude: surface to 100,000 feet

Protection Distance for interference to AMT from UE was determined by assuming 1 station was in use due to its close proximity.

Figure A-11.1 Point Mugu Complex**Figure A-11.2 Point Mugu Environment**

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Figure A-11.3 Pt Mugu Analysis for Randomized Real UE Deployment

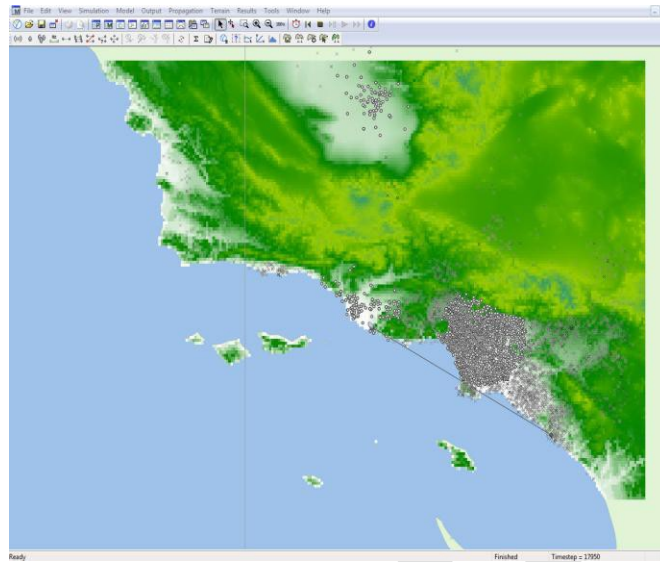


Figure A-11.4 Pt Mugu Analysis for Randomized Real UE Deployment

Pt Mugu pfd Protection Distance Assessment

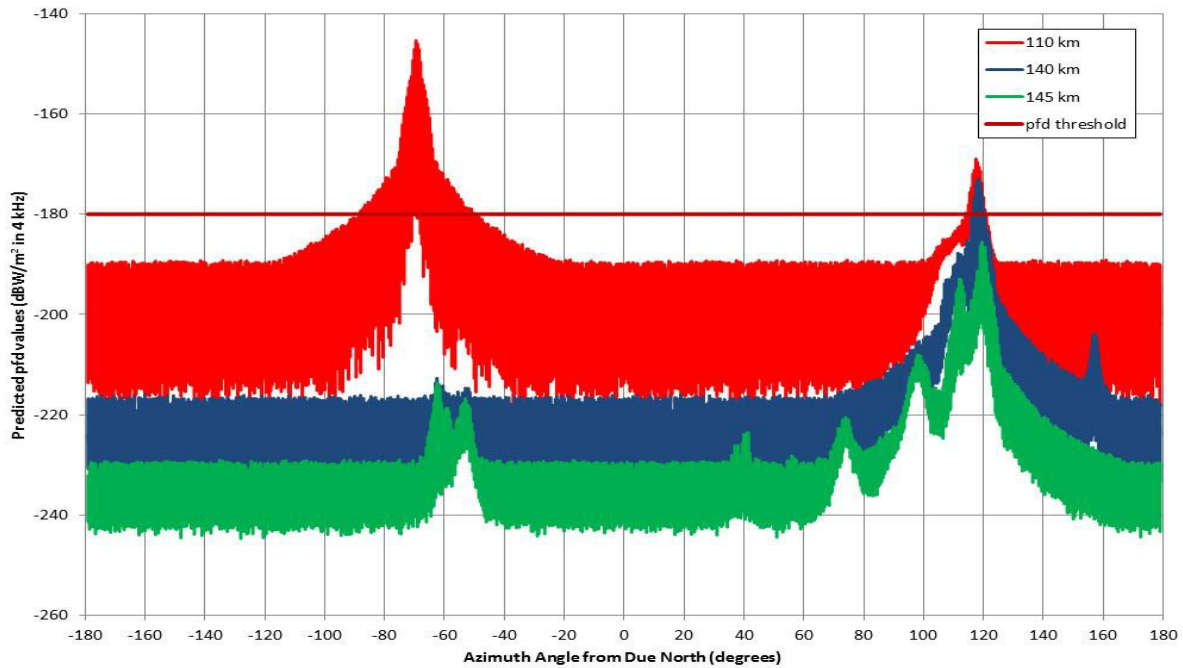


Figure A-11.5 Pt Mugu AMT Transmit to Base Station Receive

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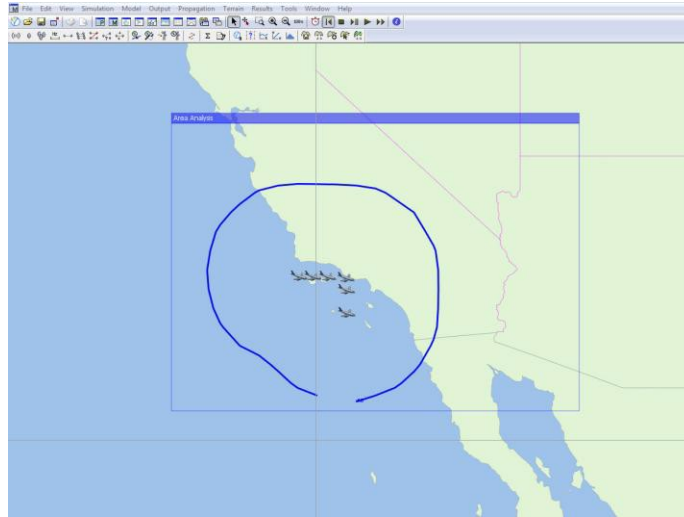


Figure A-11.6 Pt Mugu AMT Transmit to Base Station Receive



A-12 Eglin AFB Technical Parameters and Simulation Results

Largest Dish Antenna: 24' Aperture, 39 dBi Gain

Primary operating areas:

Land Ranges

R-2914, R-2915

Alt: Surface to 23,000 feet

Offshore Water Ranges

W-151, W-470

Alt: Surface to 50,000 feet

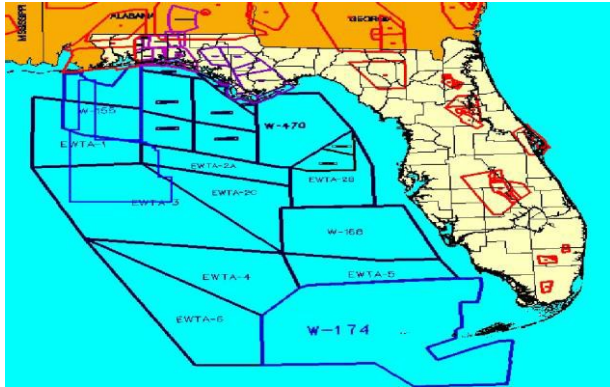
Figures A-12.1 Eglin AFB

DRAFT as of 20 June 2013

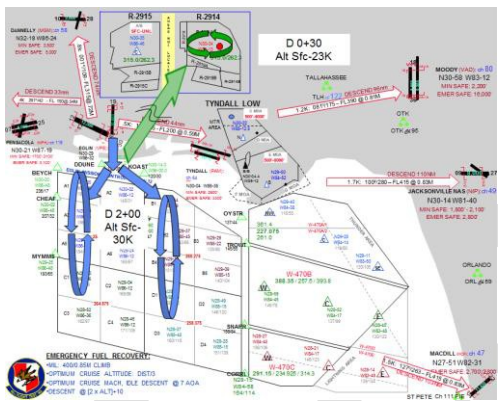
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a. Eglin AFB



b. Eglin Air Space



c. Eglin offshore water ranges

Figure A-12.2 Eglin Air Force Base with Randomized Real UE Deployment

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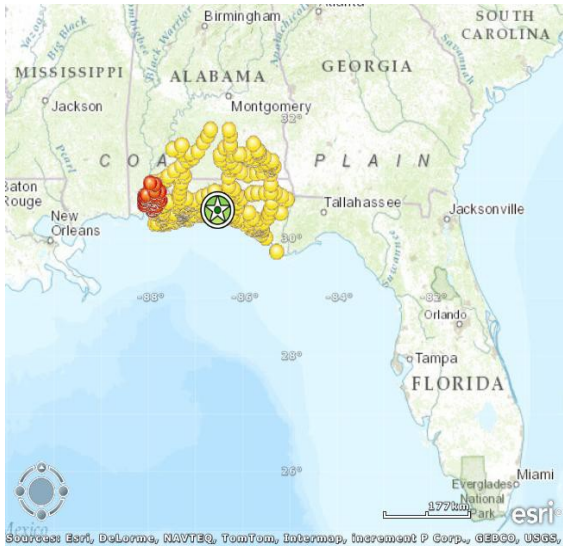


Figure A-12.3 Eglin Air Force Base: Analysis from Randomized Real UE Deployment – Protection Distance

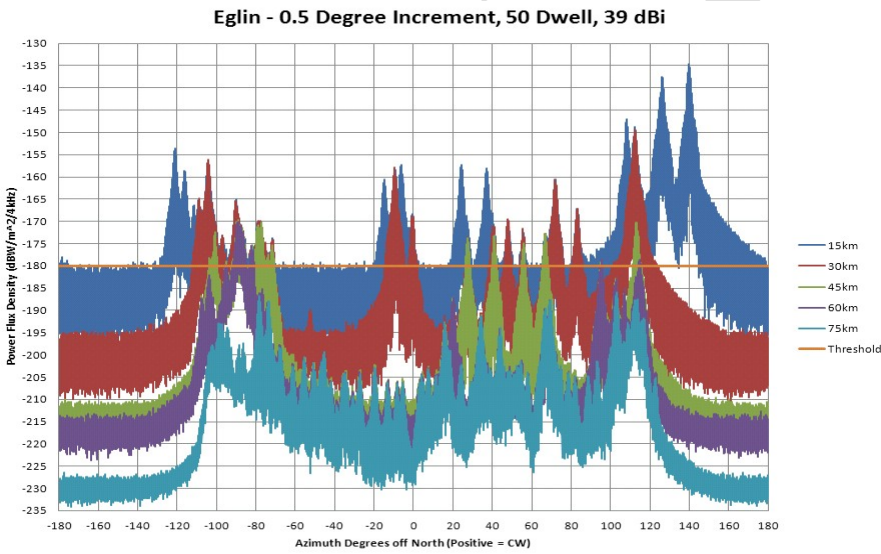


Figure A-12.4 Eglin Air Force Base: Analysis from Randomized Real UE Deployment – Protection Distance

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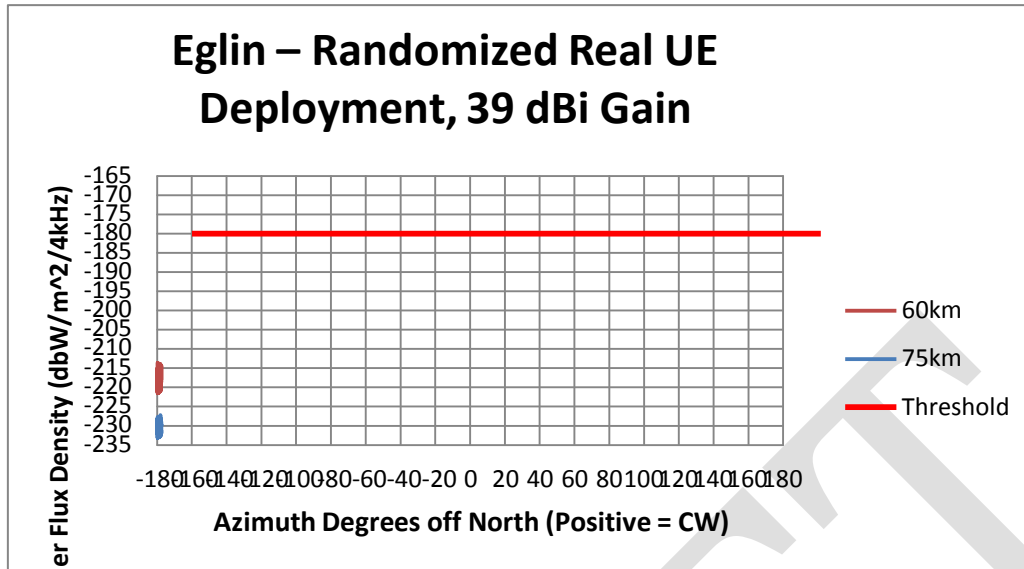


Figure A-12.5 Eglin Air Force Base: Analysis from Randomized Real UE Deployment – Protection Distance

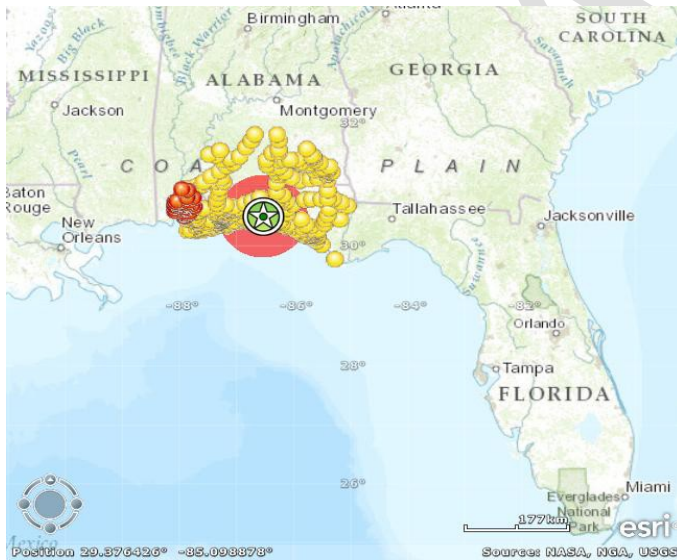


Figure A-12.6 Eglin Air Force Base: Analysis from AMT Transmitters into Commercial Base Stations (bold lines indicate additional flight area boundaries that are outside of the numbered test zones; other test areas exist that are not shown on the representative map below)

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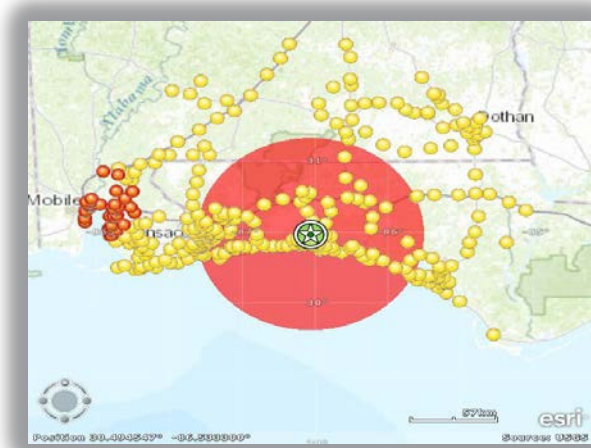


Figure A-12.7 Eglin Air Force Base: Analysis from AMT Transmitters into Commercial Base Stations
(bold lines indicate additional flight area boundaries that are outside of the numbered test zones; other test areas exist that are not shown on the representative map below)

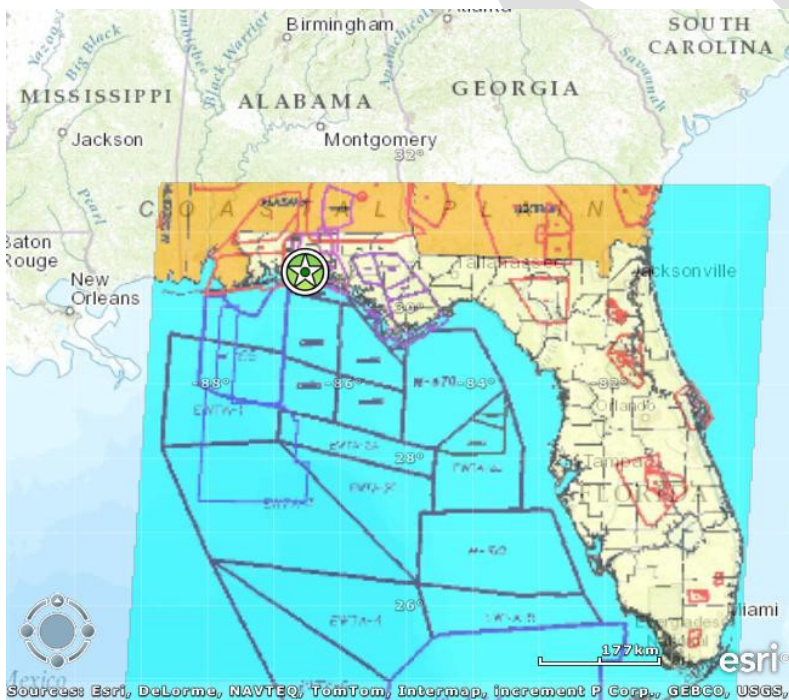
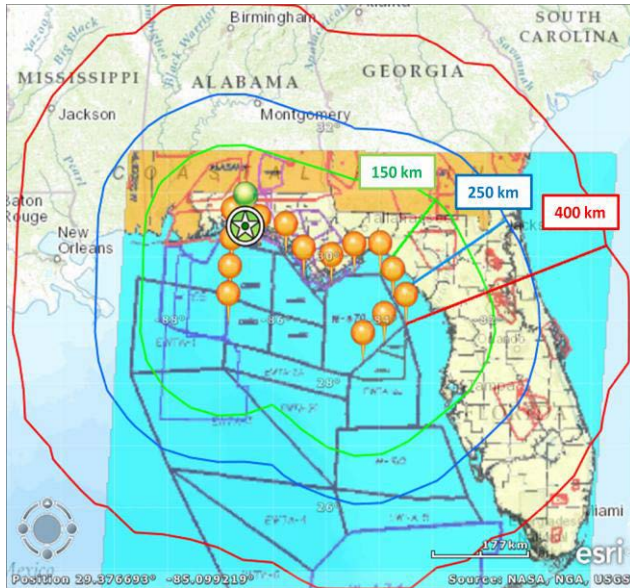


Figure A-12.8 Eglin Air Force Base: Analysis from AMT Transmitters into Commercial Base Stations
(bold lines indicate additional flight area boundaries that are outside of the numbered test zones; other test areas exist that are not shown on the representative map below)

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- I/N = -6 dB contour for base antenna 3 deg downtilt, on-axis
- I/N = -6 dB contour for base antenna 3 deg downtilt, 60 deg off-axis
- I/N = -6 dB contour for base antenna 3 deg downtilt, 180 deg off-axis

A-13 Validation of Results

- ITM/Longley-Rice Model results can be validated, to a first approximation, by comparison with test data
- Actual measured data can be found in NTIA report:
 NTIA Report 91-282
 NATIONAL TELECOMMUNICATIONS AND INFORMATION
 ADMINISTRATION
 BOULDER, CO
 Dated: DEC 91
 Titled: "TABULATIONS OF PROPAGATION DATA OVER IRREGULAR
 TERRAIN IN THE 75- TO 8400- MHZ FREQUENCY RANGE - PART V:
 VIRGINIA"
 - George A. Hufford & Francis K. Steele

A-14 Observations – UE-to-AMT

- All protection distances assessed extend beyond 75 km at each range in at least one azimuth angle
- For multiple AMT sites, required protection distances are similar in extent, suggesting general applicability of results to all AMT sites
- Nominal required protection distances are increased in the directions where there is a dense concentration of UE emitters

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A-15 Observations – AMT-to-Base Stations

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- **Distances to protect base stations extends greater than 560 km and beyond depending on orientation of base station antenna**
- **Variations in base station antenna heights has small effect on predicted required separation distances**

A-16 Summary of Initial Distance Assessment

From UEs-to-AMT Receivers		From AMT Transmitters-to-LTE Base Stations		
AMT Site	Estimated Protection Distance (km)	AMT Site	Estimated Minimum Distance ¹ (km)	Estimated Maximum Distance ² (km)
ATR (Patuxent River)	>80	ATR (Patuxent River)	100	>560
Pt. Mugu	140	Pt. Mugu		
Eglin	>75	Eglin		

¹ - Assumes Base Station antenna is 180 degrees off-azimuth from ACTS range area with downtilt of 3 degrees.

² - Assumes Base Station antenna is zero degrees off-azimuth from ACTS range area with downtilt of 3 degrees.