

Directional Antenna Information, Antenna Sketch, Modulating Signal Description, and Proposed Test locations

Umbra Lab Inc
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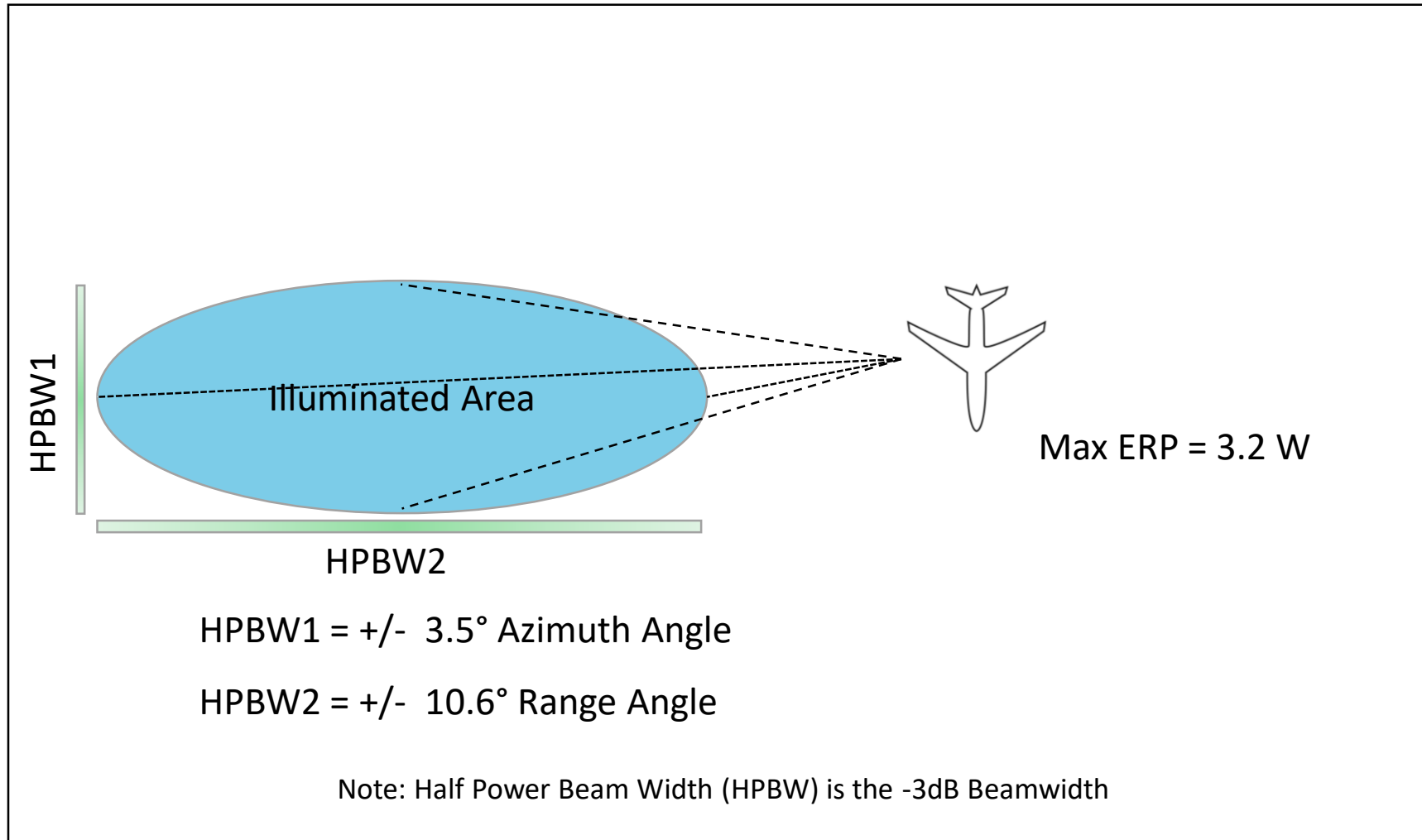
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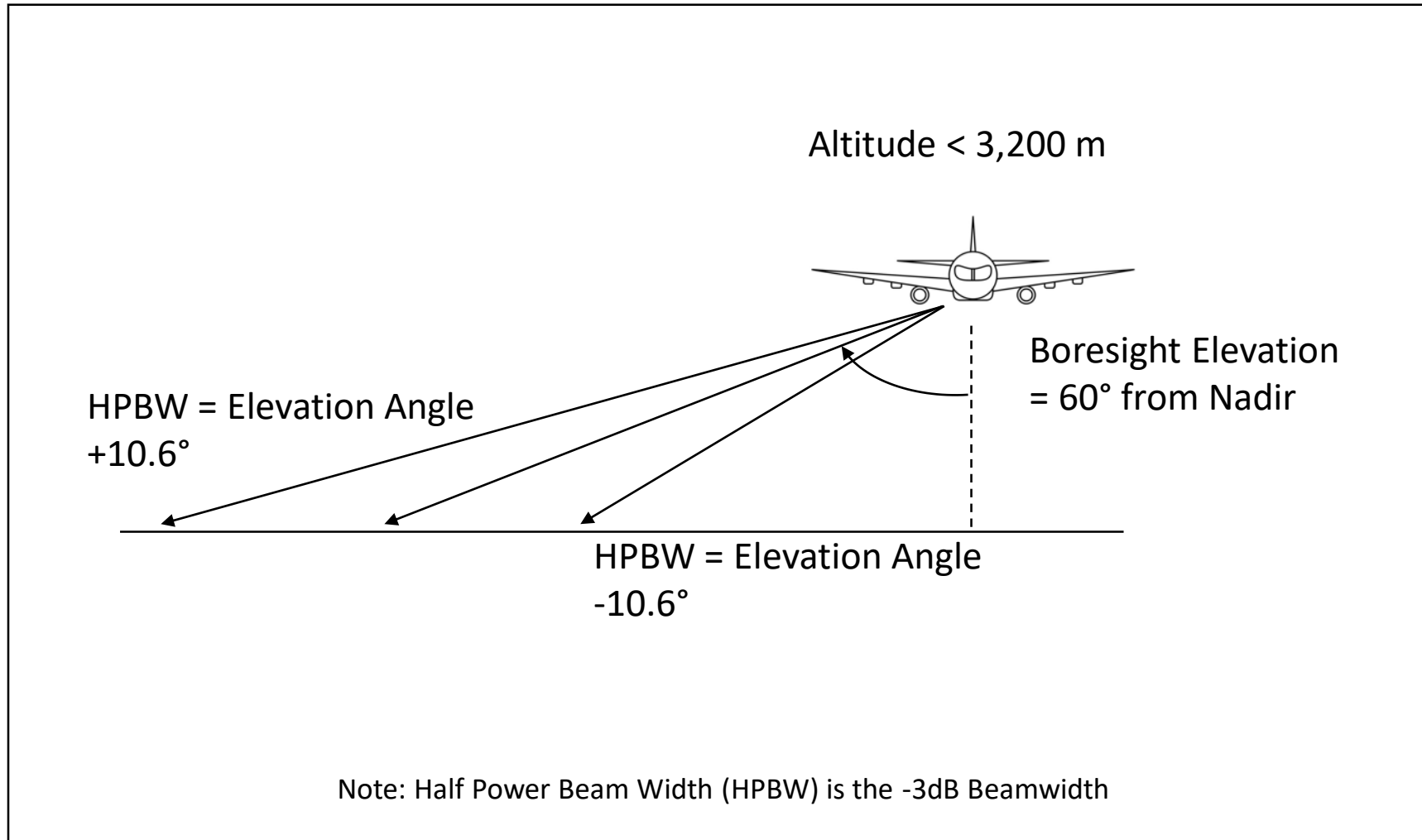
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Top Down View of UMBRA Lab Airborne test



Side View of UMBRA Lab Airborne test



Modulating Signal Description

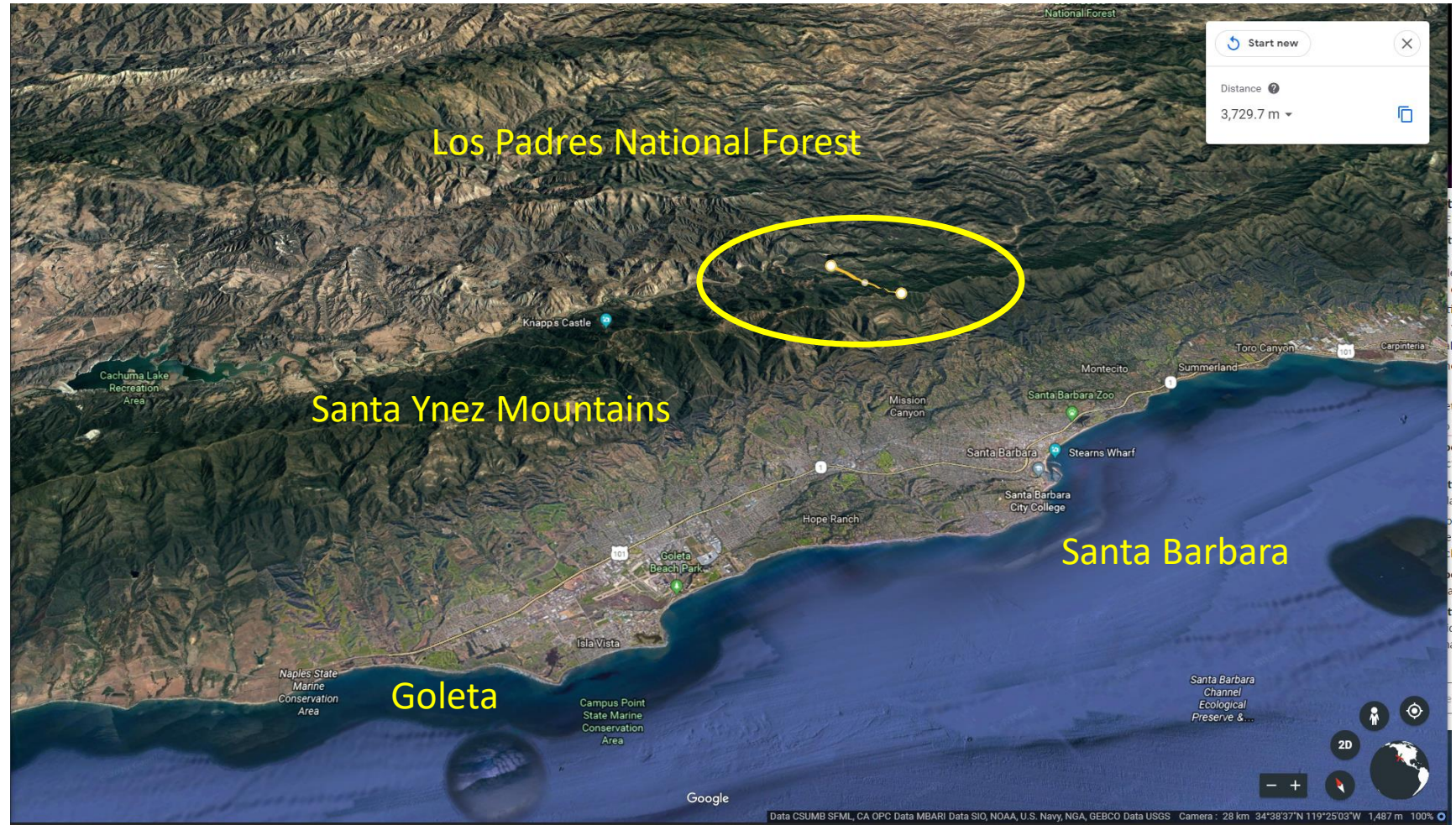
- Modulation
 - Linear Frequency Up-chirp or Down-chirp of carrier
- Modulated Signal Bandwidth = 1,200 MHz max
- PRF = 2,000 to 8,000 Hz
- Duty Cycle < 20%

Ground test location

Mobile ground test located at:
N34°29'32" , W119°40'46"

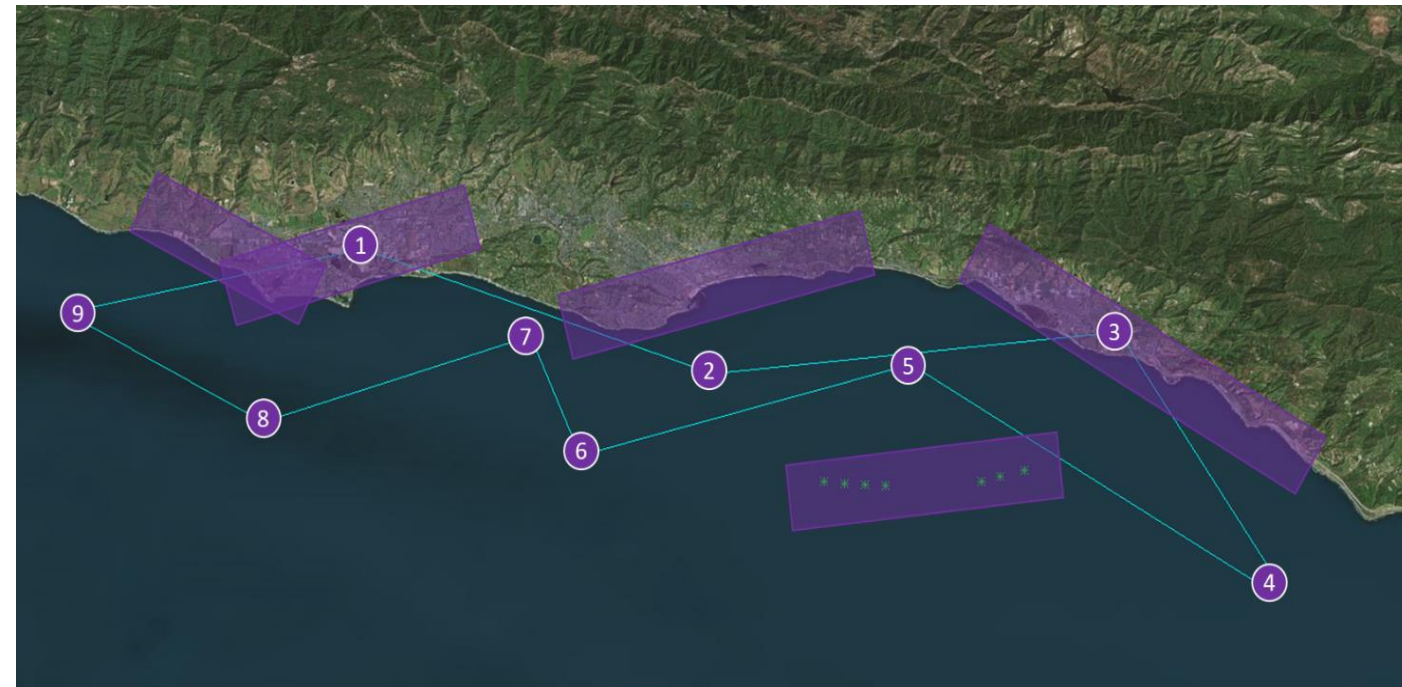
Spotlight image of Gibraltar dam for performance benchmark

Test duration: 10 scans at 7 seconds each over <60 minutes in total



Proposed ground tracks and waypoints for flight test

The approximate flight path is shown here, with way points indicated by their number, and listed in the table. The shaded boxes indicate the approximate stripmap of data that will be collected on each respective path, indicating when the radar equipment will be active. The path allows for variation in takeoff and landing at Santa Barbara Airport, as no stripmaps begin or end within the immediate vicinity. The path also maintains a reasonable proximity to Santa Barbara Airport, resulting in a flight path length of about 70 miles and should take approximately 40 minutes.



Way Point	Latitude (deg)	Longitude (deg)
1	34.42773816	-119.83834852
2	34.37660890	-119.68130993
3	34.39366911	-119.50041752
4	34.28220499	-119.42275024
5	34.38043272	-119.59295927
6	34.34327249	-119.74037932
7	34.39196721	-119.76253322
8	34.35695781	-119.88176697
9	34.40148724	-119.96943450