UAT-WP-8-09
The European DME/TACAN Environment
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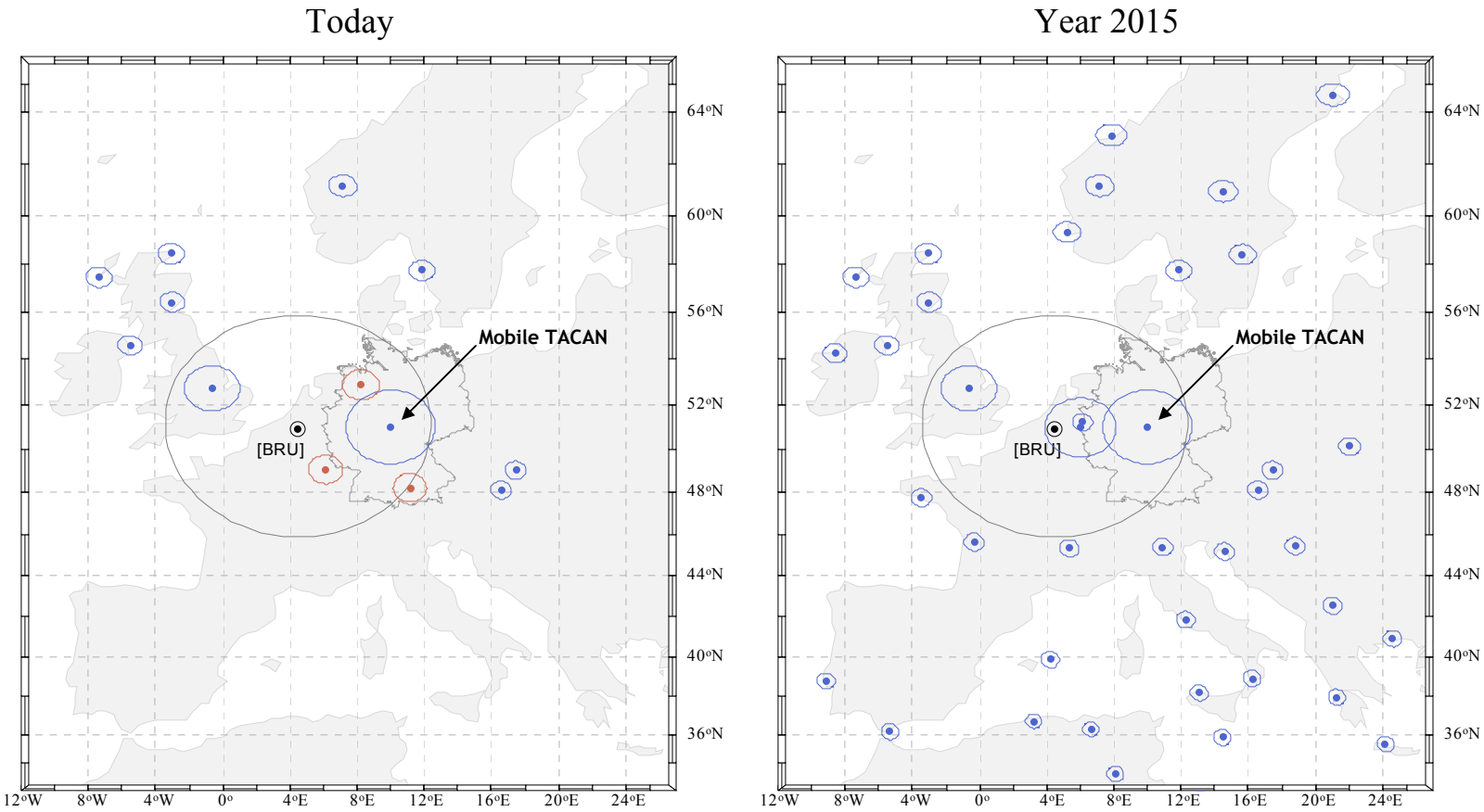
Objective

- To determine the worst-case DME/TACAN interference scenario
  - TODAY
    - Operational DME/TACAN stations only
    - Aircraft at 15,000 and 40,000 ft
  - YEAR 2015
    - 978 MHz (17X) is cleared
    - All planned DME/TACAN stations are operational
    - Location of mobile TACAN in Germany is subject to 8-dB D/U rule
    - Aircraft at 15,000 and 40,000 ft

European DME/TACAN Environment

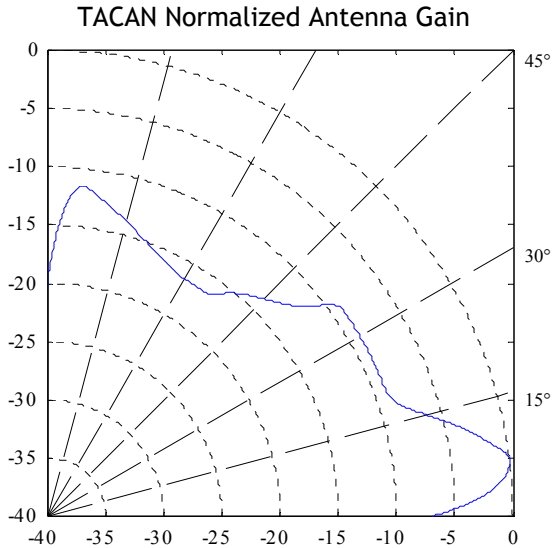


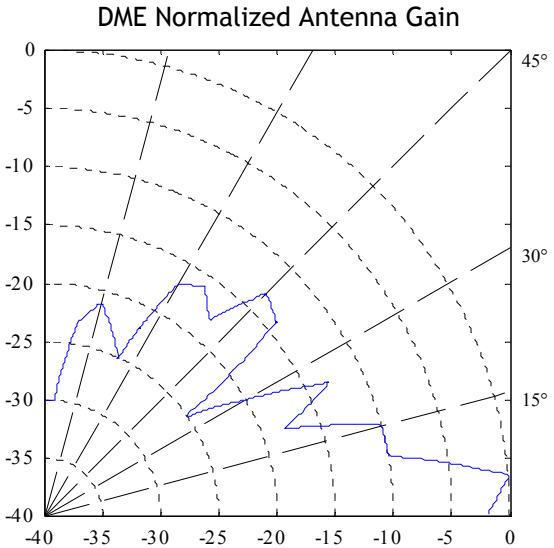
Shown above are DME and TACAN stations and their service areas, as listed in the available databases.

- 979 MHz
- 978 MHz

Antenna Patterns

- DME and TACAN station antenna patterns are assumed to be directional in elevation as shown below

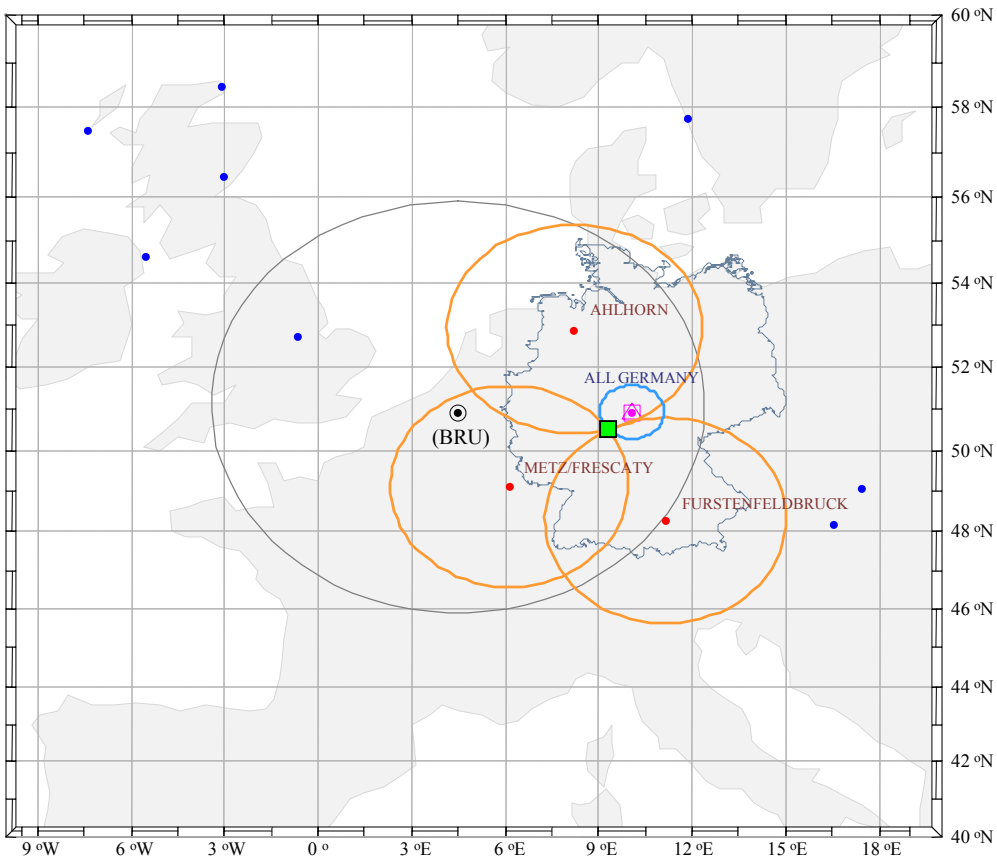




Example

- Aircraft at *(Lon, Lat, Alt)* = (9.3º E, 50.5º W, 40,000 ft)

DME/TACAN	Rec. Power (dBm)
AHLHORN	-73.7
FURSTENFELDBRUCK	-74.2
METZ/FRESCATY	-73.8
ALL_GERMANY	-61.2



Received Power Levels for Present/Future Scenarios

European DME/TACAN Environment Today								
Location of Aircraft	Alt (ft)	AHLHORN	METZ	FURSTENFELDBRUCK	ALL_GERMANY	COTTESMORE	BRUGGEN	GEILENKIRCHEN
X = -9.16, Y = 9.64	39818	-76	-73		-67	-92	Not Operational	
X = 22.74, Y = -14.83	38320	-76	-70		-62			
X = 7.23, Y = -10.16	38453	-76	-71		-65	-93		
X = 31.57, Y = -7.58	38990	-75	-70		-61			
Over BRU: X = 0, Y = 0	40000	-75	-70		-61			
Over BRU: X = 0, Y = 0	15000		-75		-68			
Lon = 9.3, Lat = 50.5	40000	-74	-74	-74	-57			
Lon = 9.3, Lat = 50.5	15000	-76	-76	-77	-53			

European DME/TACAN Environment in 2015								
Location of Aircraft	Alt (ft)	AHLHORN	METZ	FURSTENFELDBRUCK	ALL_GERMANY	COTTESMORE	BRUGGEN	GEILENKIRCHEN
X = -9.16, Y = 9.64	39818	Cleared			-76	-92	-76	-67
X = 22.74, Y = -14.83	38320				-74		-77	-64
X = 7.23, Y = -10.16	38453				-75	-93	-76	-65
X = 31.57, Y = -7.58	38990				-73		-79	-64
Over BRU: X = 0, Y = 0	40000				-71		-76	-64
Over BRU: X = 0, Y = 0	15000				-68		-76	-69
Lon = 6, Lat = 51	40000				-70		-76	-62
Lon = 6, Lat = 51	15000				-64		-72	-56

X and Y refer to displacement from Brussels International Airport (BRU) in units of nautical miles (nmi).

All power levels are in units of dBm.