



DGPS SITE OPERATIONAL ASSESSMENT

NDGPS Site: *Acushnet, MA*

Inspector(s): LT Michael Brashier and LT Hermie Mendoza

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PURPOSE:

- Validate advertised DGPS coverage of the Angleton DGPS site.
- Validate required RTCM message delivery.
- Test differential correction accuracy versus a predetermined survey monument.

EQUIPMENT: DNAV 212 Receiver
Raven INVICTA Receiver
MBA-2 Receive Antenna

PARAMETERS:

Frequency	306 KHz
Forward Output Power	900 W
Transmission Rate	200 bps
Field Strength/Range	100 μ V/m (40.0 dB μ V/m) at 370 KM

SITE PHOTO:



RESULTS

Signal Strength:

Figure 1 shows the DNAV readings from the Acushnet DGPS site and compares it with the predicted and advertised DGPS coverage of the site. The advertised range for Acushnet is 370 KM. Green points represent areas of satisfactory signal strength and signal-to-noise ratio (SNR). Those areas with unsatisfactory signal strength and SNR are designated with a red point.

DNAV readings were taken at 370 KM from the Acushnet DGPS site along a southwest bearing. The signal strength and SNR exceeded the advertised coverage except in mid-state New Hampshire and 46 KM away from Brunswick, ME.

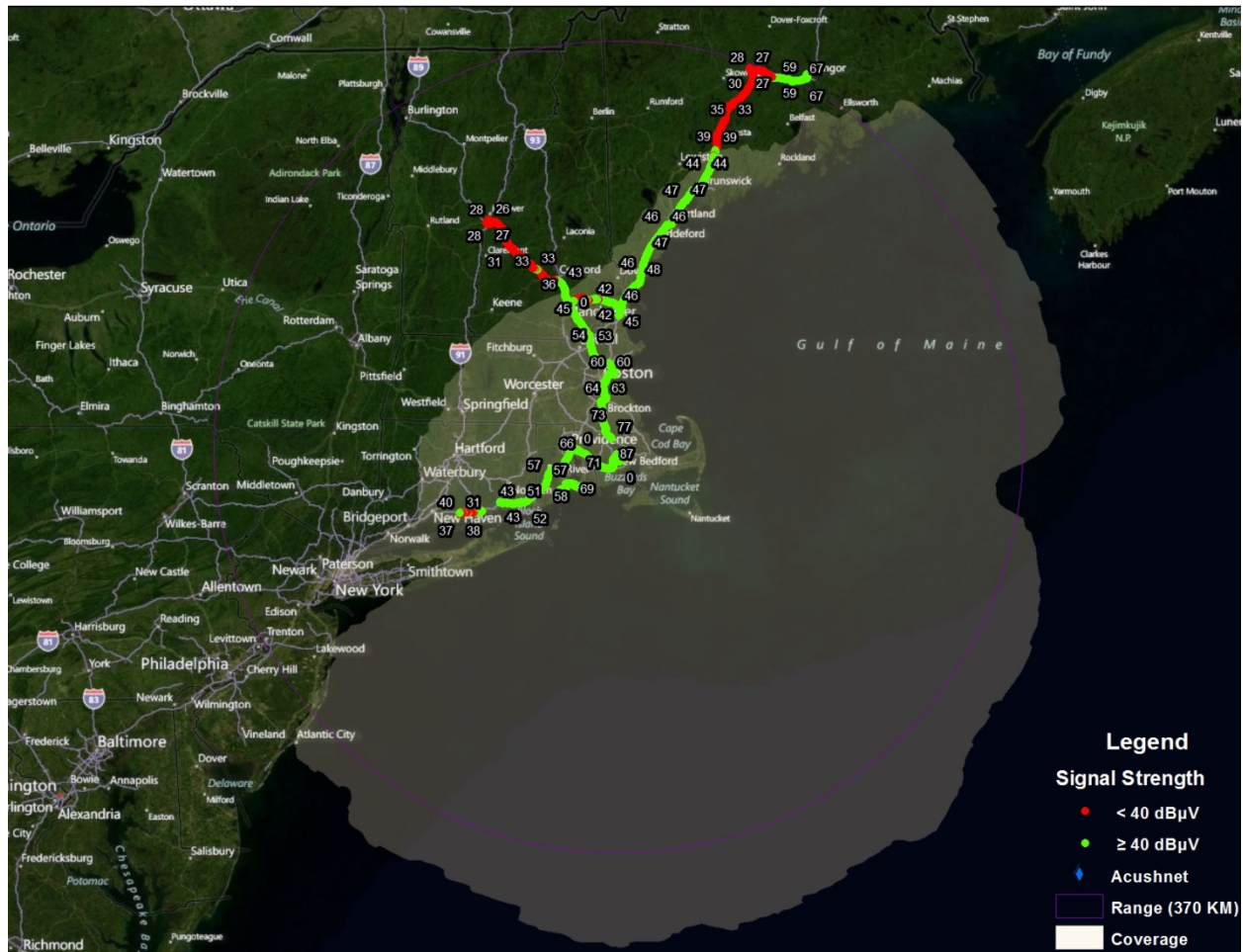


Figure 1: Acushnet DNAV readings and predicted coverage

Far-Field Signal Strength Reading 1:

Receiver:	DNAV 212 INVICTA
Antenna:	MBA-2
Position	44° 45' 40.032" N 068° 57' 36.252" W
Signal Strength	66
SNR	17

RTCM Message Verification:

RTCM messages were collected from both sides of the DGPS site utilizing a Raven INVICTA receiver.

All required RTCM messages were received with Side A and Side B.

Side A

Type 3	X
Type 7	X
Type 9	X
Type 16	X
Misc	Type 6

Side B

Type 3	X
Type 7	X
Type 9	X
Type 16	X
Misc	Type 6

Accuracy Validation:

Data was collected for 10 minutes on each side. Positional data was then averaged and compared to the actual monument position to check the horizontal accuracy of the correction.

NGS Monument ID:	BBCD34
Monument LAT:	44° 51' 43.78731" N
Monument LON:	069° 26' 41.05635" W

Side A

Averaged LAT:	44° 51' 43.79661" N
Averaged LON:	069° 26' 41.05128" W
Distance from DGPS Site:	350.95 km (218.07 miles)
Distance from Monument:	0.32 m
Bearing from Monument:	154.57

Side B

Averaged LAT:	44° 51' 43.76142" N
Averaged LON:	069° 26' 41.05461" W
Distance from DGPS Site:	349.83 km (217.38 miles)
Distance from Monument:	0.80 m
Bearing from Monument:	90

OPERATIONAL RECOMMENDATION:

Analysis of Acushnet's coverage is consistent with the predicted coverage plot. No changes and/or updates are needed at this time.