For each signal direction found in problem 3 (-0.5851 radians, -0.3947 radians, and 0.742 radians), the MVDR boresight filter beampattern is overlaid.

In general, the GSC works as well or better than the MVDR filter. By using a degree of freedom to concentrate a null at a chosen location, the null is much deeper than that created by the MVDR filter.

Since there are only 3 (known) signals, and 10 array elements, the GSC has enough degrees of freedom to effectively create the null while still meeting the unity gain constraint and the single null constraint.

In all three cases where a null was placed at the known signals, the unity gain constraint is met, and the desired null is very sharp and deep. In the -0.5851 and -0.3947 cases, the beampattern response is very close to the MVDR, signifying that the cost of giving up one degree of freedom for null placement was not that great (it also appears to be because the MVDR filter had a null there anyway). For the null at 0.742 radians, the beampattern response differs more than the other two null placements. Overall rejection is about the same at all three signal locations, and even exhibits better rejection at other directions.

Placing a null away from detected signals (at -1.437 radians) shows that the combined adaptive and non-adaptive filters can reject the three rejected signals, while placing a null at the desired direction without penalty.