Run Scripts

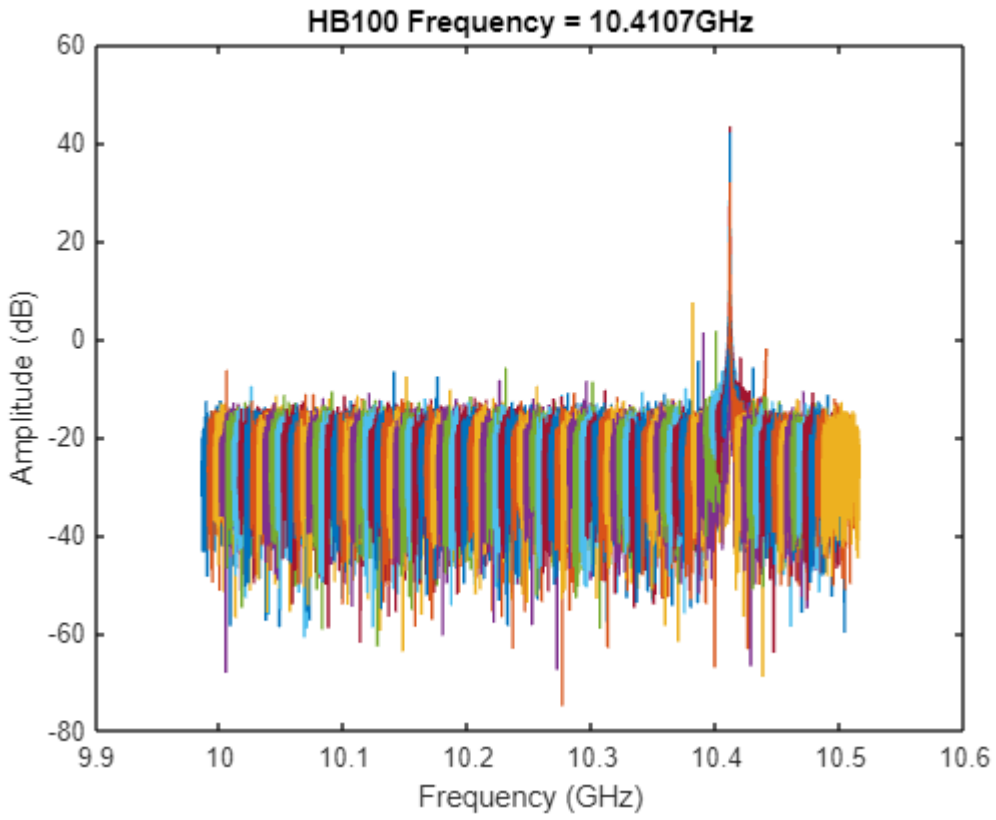
This script runs through all relevant scripts to ensure that everything runs without error.

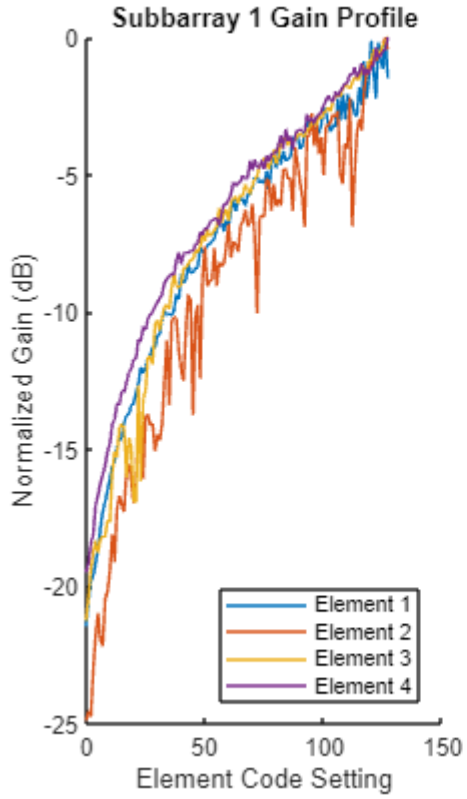
Setup:

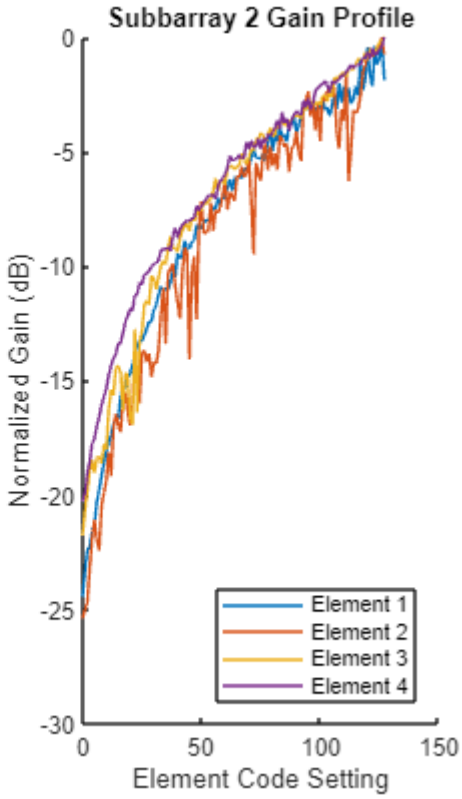
Hook the Vivaldi up to SMA OUT2 and place the HB100 at 0 degrees boresight.

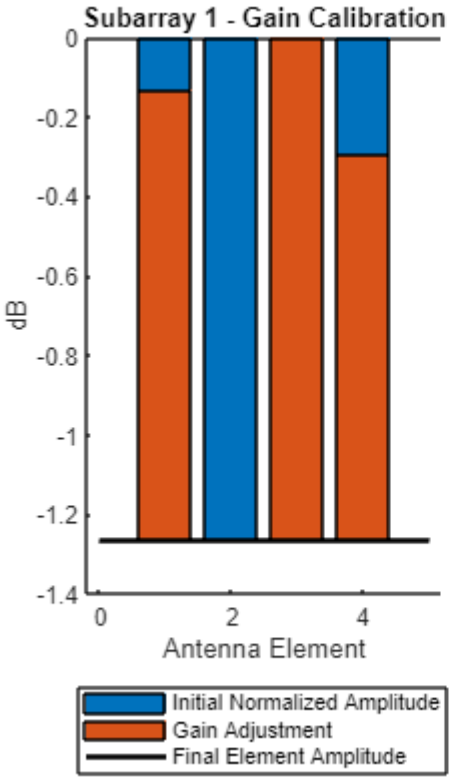
Receiver Data Collection

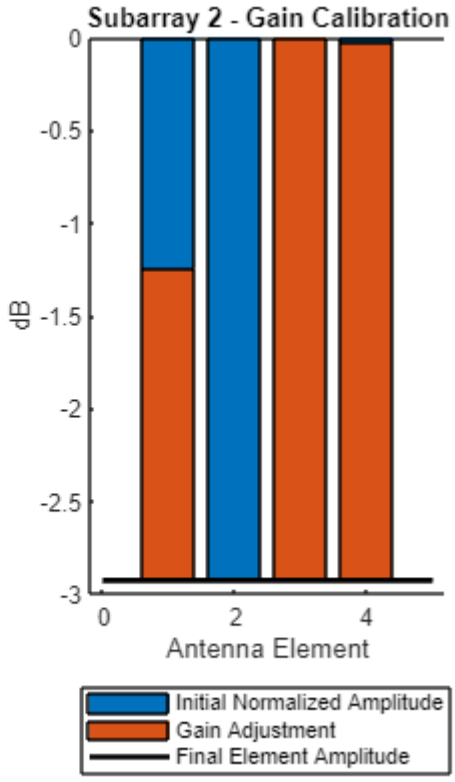
```
receiverDataCollection;
```

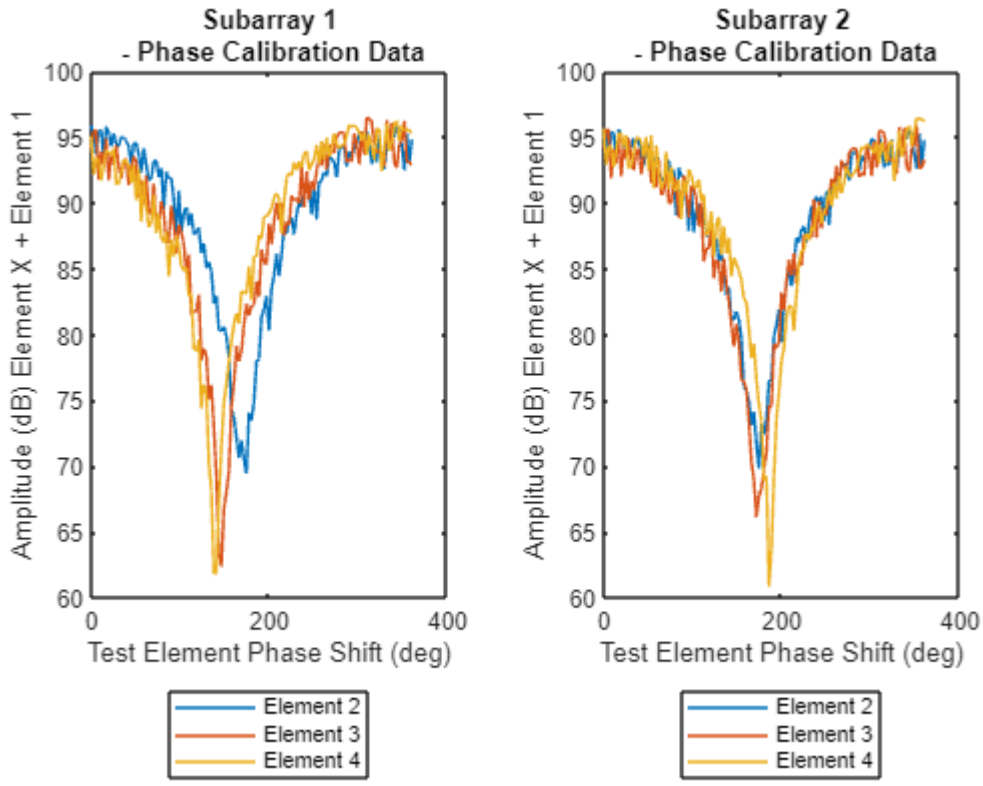


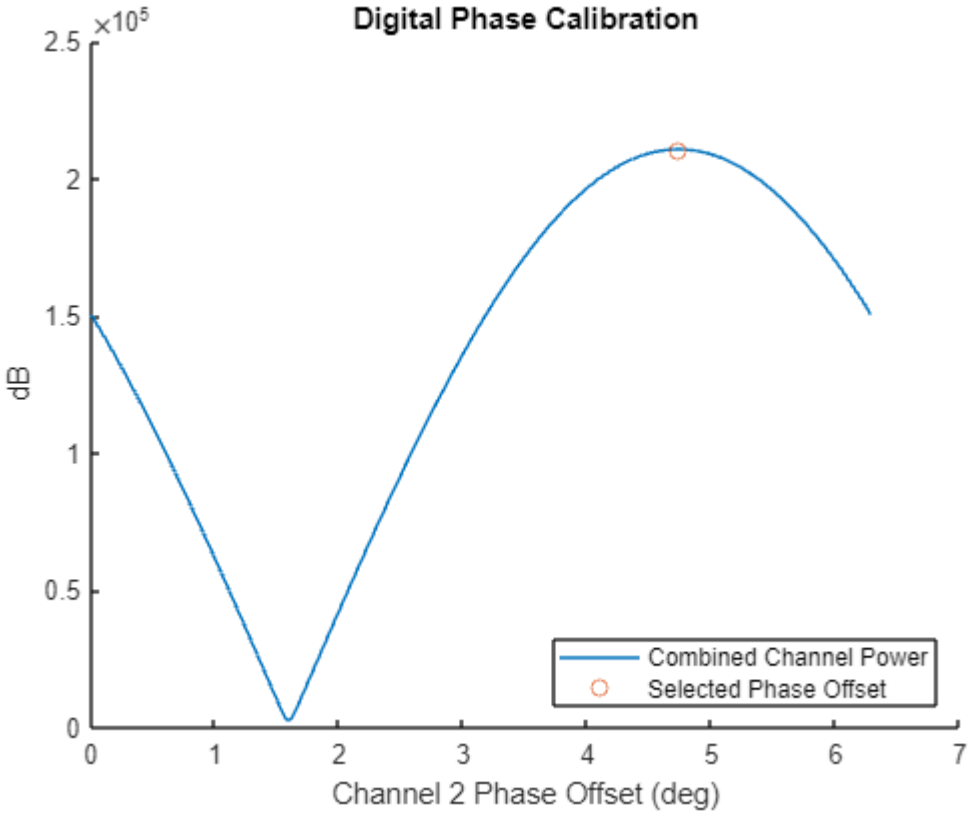

Subbarray 1 Gain Profile
Normalized Gain (dB)
Element Code Setting
Element 1
Element 2
Element 3
Element 4

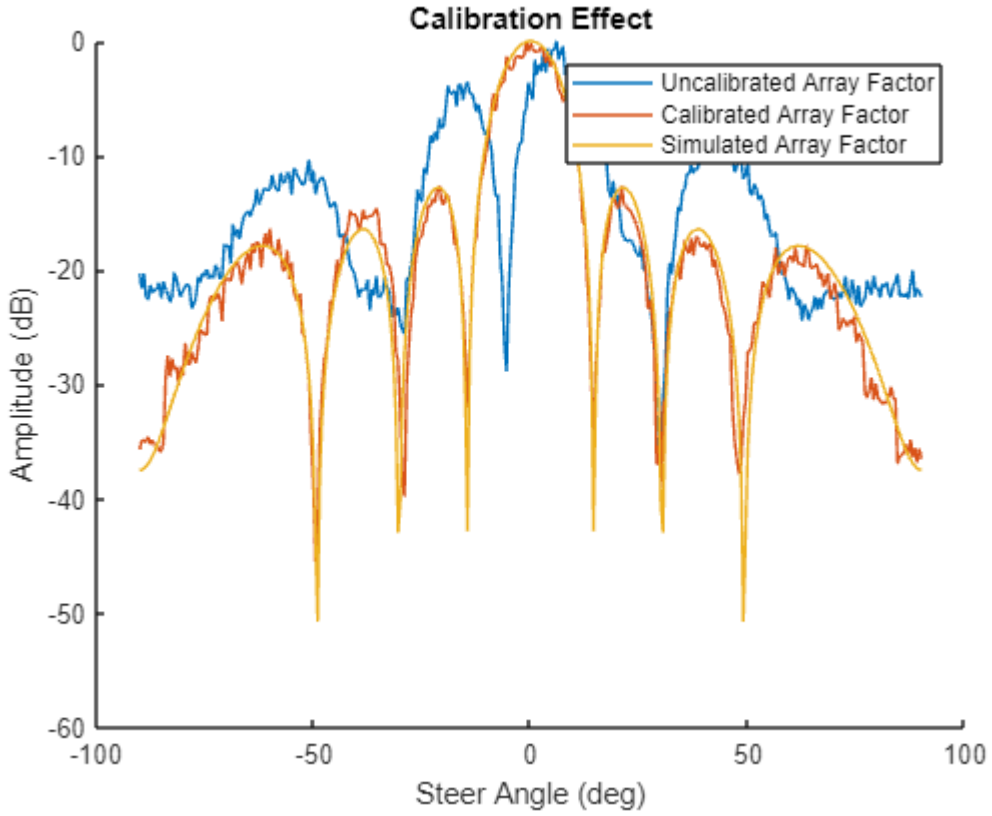

Subbarray 2 Gain Profile
Normalized Gain (dB)
Element Code Setting
Element 1
Element 2
Element 3
Element 4

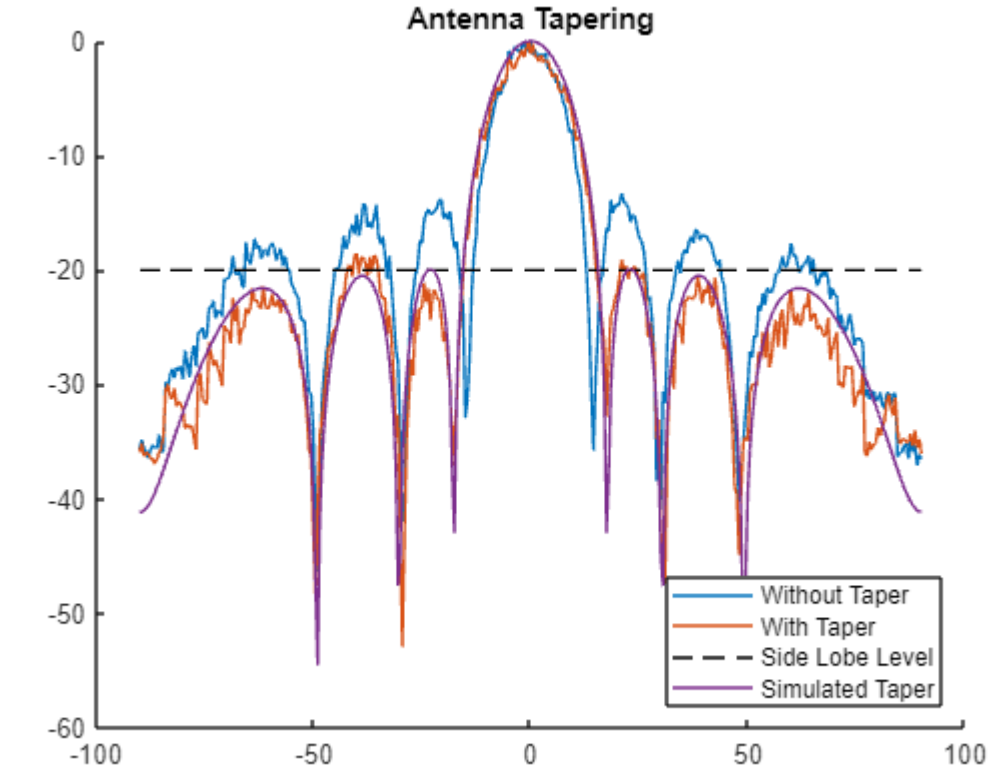

Subarray 1 - Gain Calibration
dB
Antenna Element
Initial Normalized Amplitude
Gain Adjustment
Final Element Amplitude

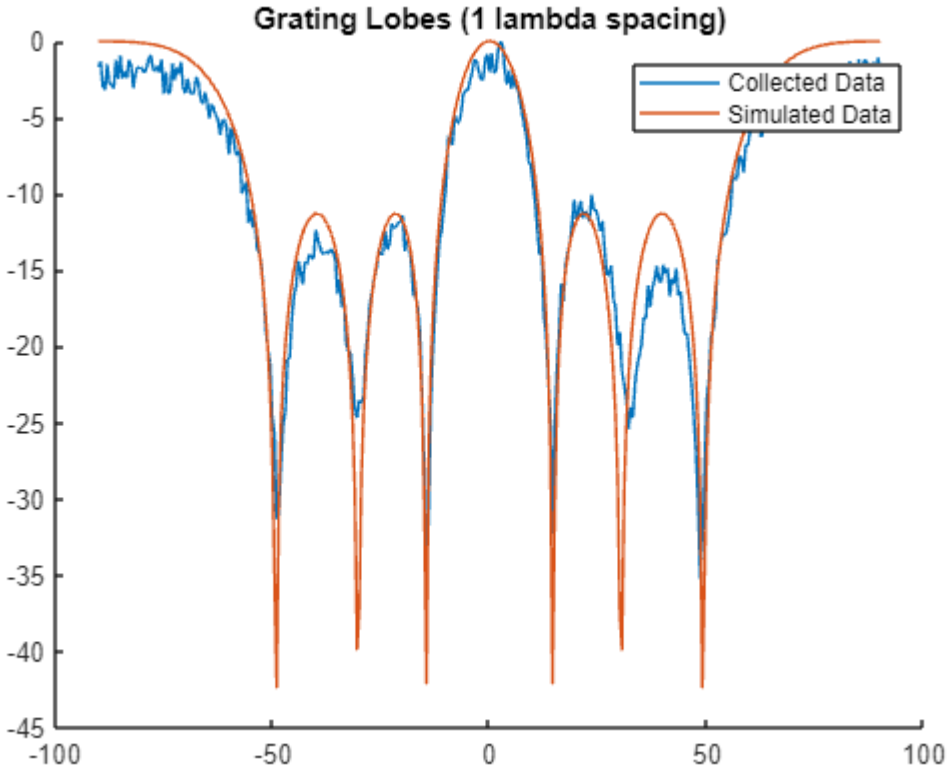

Subarray 2 - Gain Calibration
dB
Antenna Element
Initial Normalized Amplitude
Gain Adjustment
Final Element Amplitude

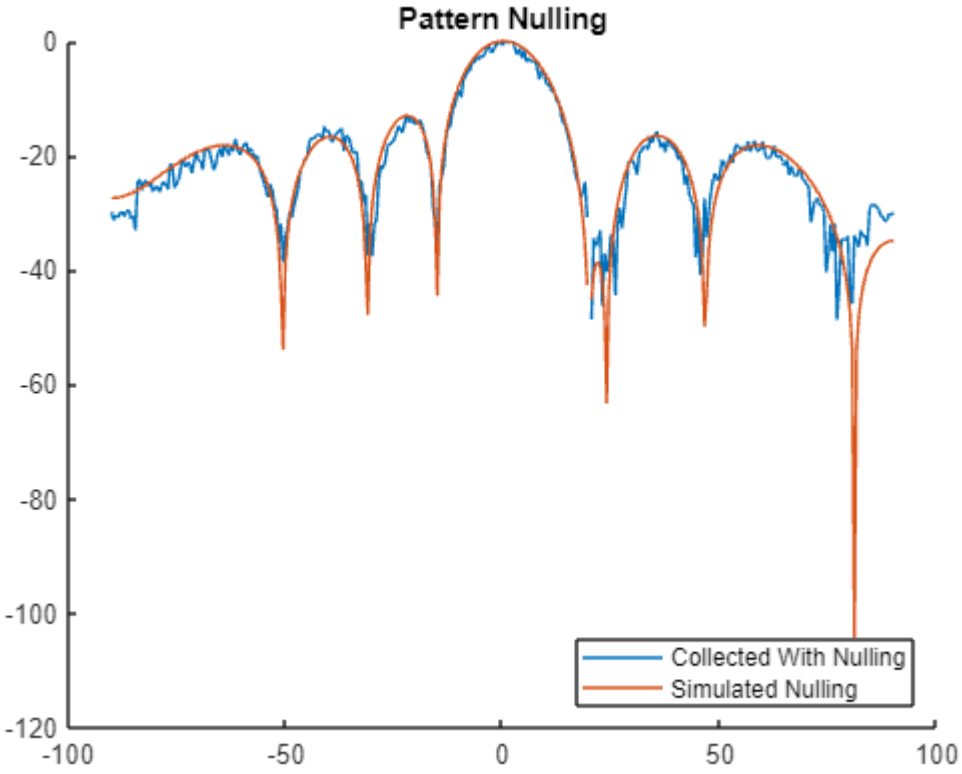

Subarray 1
- Phase Calibration Data
Amplitude (dB) Element X + Element 1
Test Element Phase Shift (deg)
Element 2
Element 3
Element 4
Subarray 2
- Phase Calibration Data
Amplitude (dB) Element X + Element 1
Test Element Phase Shift (deg)
Element 2
Element 3
Element 4

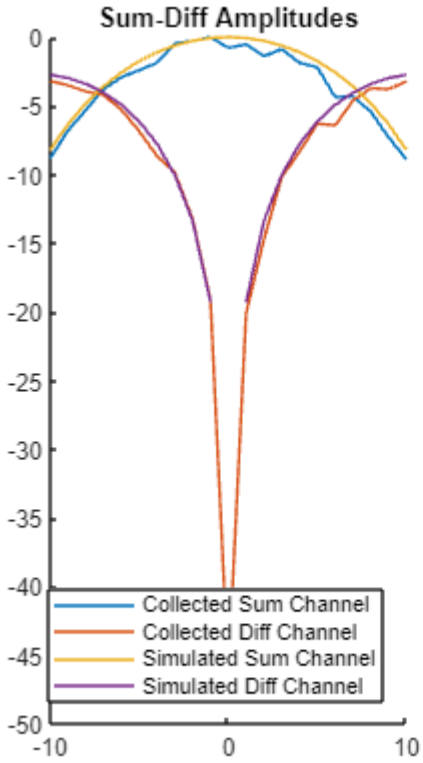

Digital Phase Calibration
×10^5
dB
Channel 2 Phase Offset (deg)
Combined Channel Power
Selected Phase Offset

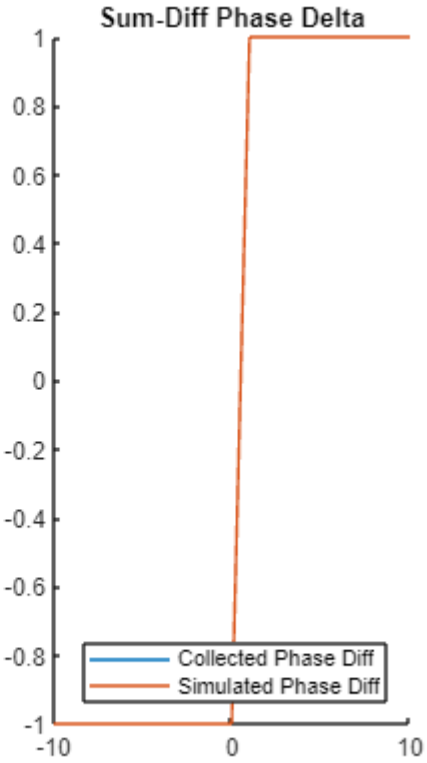

Calibration Effect
Uncalibrated Array Factor
Calibrated Array Factor
Simulated Array Factor
Amplitude (dB)
Steer Angle (deg)
0
-10
-20
-30
-40
-50
-60
-100
-50
0
50
100

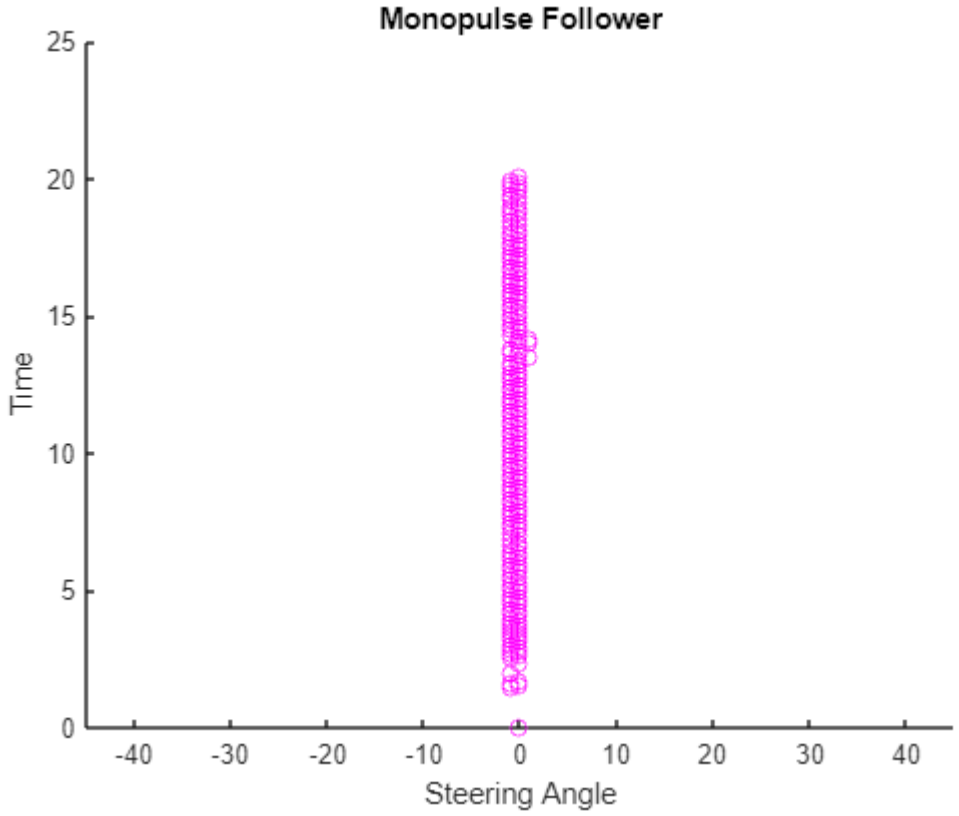

Antenna Tapering
Without Taper
With Taper
Side Lobe Level
Simulated Taper
0
-10
-20
-30
-40
-50
-60
-100
-50
0
50
100

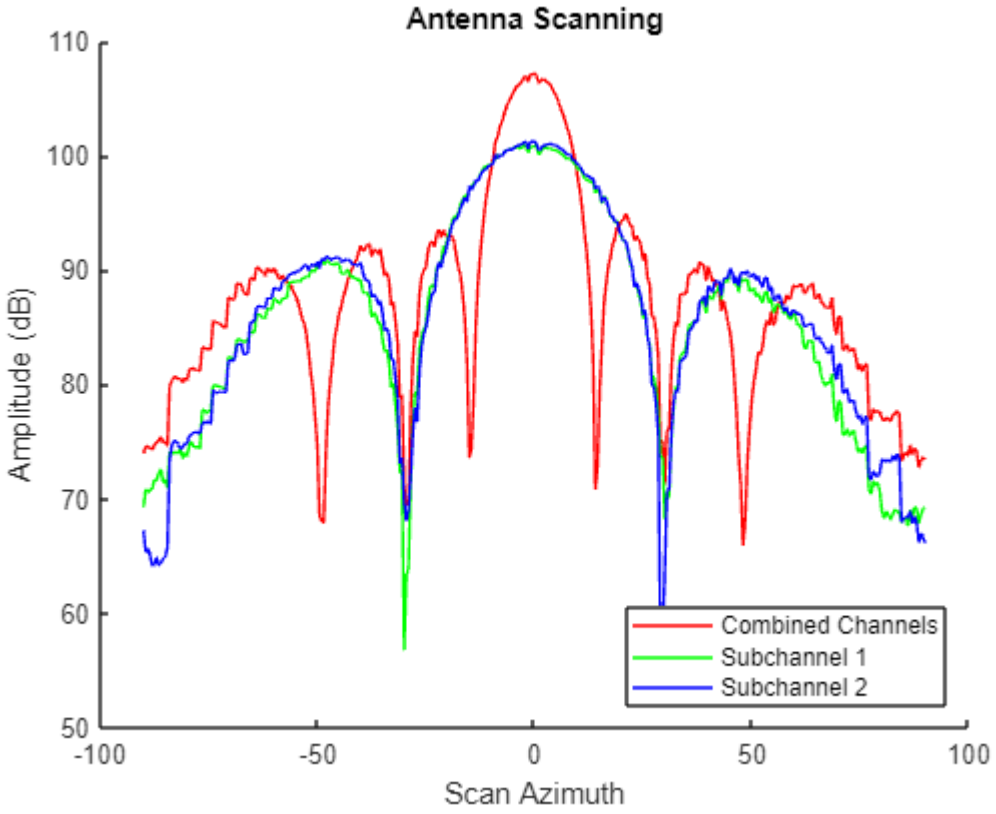

Grating Lobes (1 lambda spacing)
Collected Data
Simulated Data
0
-5
-10
-15
-20
-25
-30
-35
-40
-45
-100
-50
0
50
100


Pattern Nulling
Collected With Nulling
Simulated Nulling
0
-20
-40
-60
-80
-100
-120
-100
-50
0
50
100


Sum-Diff Amplitudes
0
-5
-10
-15
-20
-25
-30
-35
-40
-45
-50
-10
0
10
Collected Sum Channel
Collected Diff Channel
Simulated Sum Channel
Simulated Diff Channel

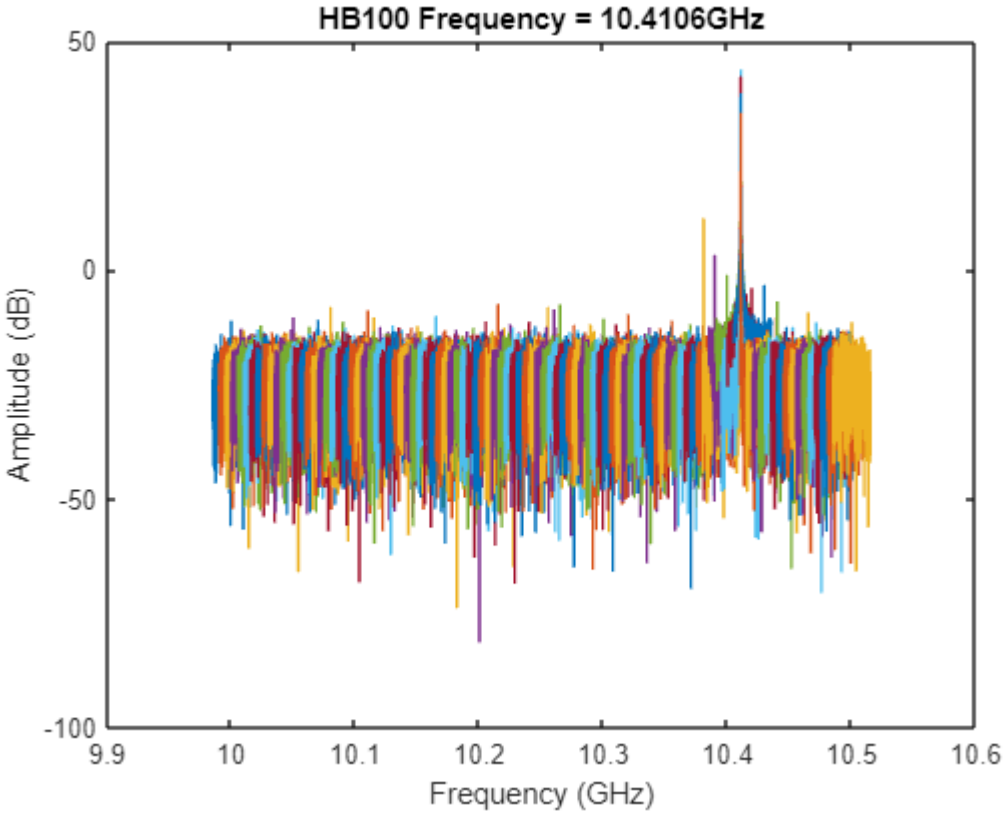

Sum-Diff Phase Delta
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
-10
0
10
Collected Phase Diff
Simulated Phase Diff

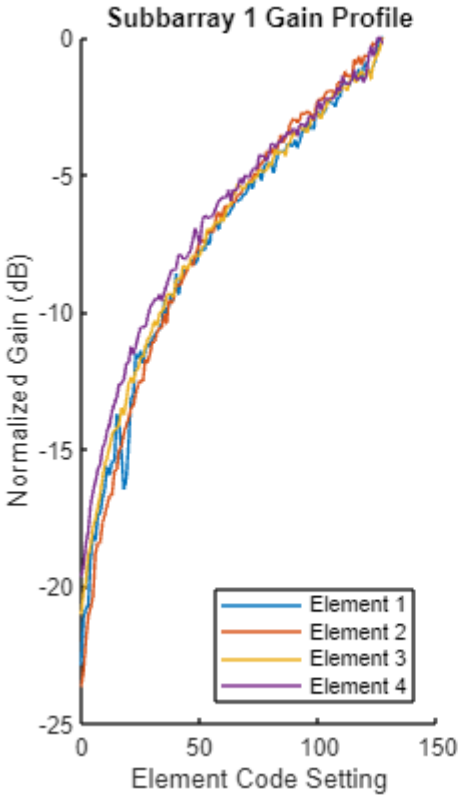

Monopulse Follower
25
20
15
10
5
0
Time
-40
-30
-20
-10
0
10
20
30
40
Steering Angle

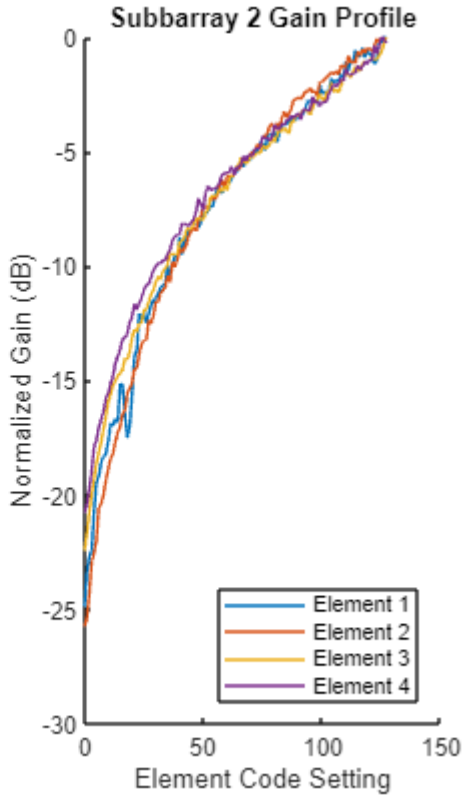


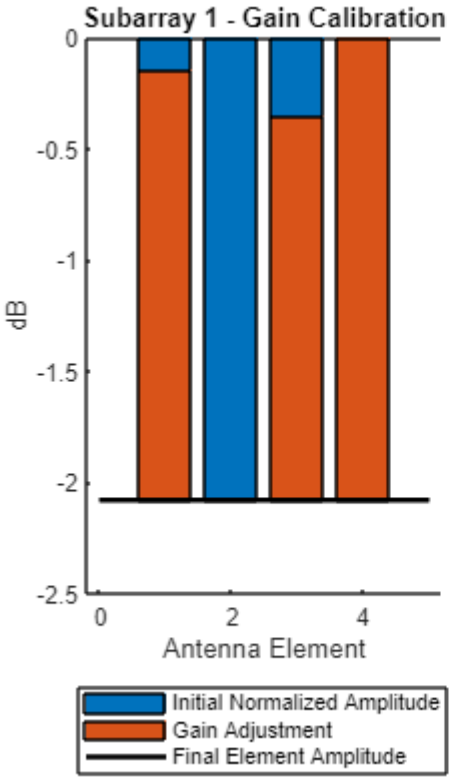
Full Calibration

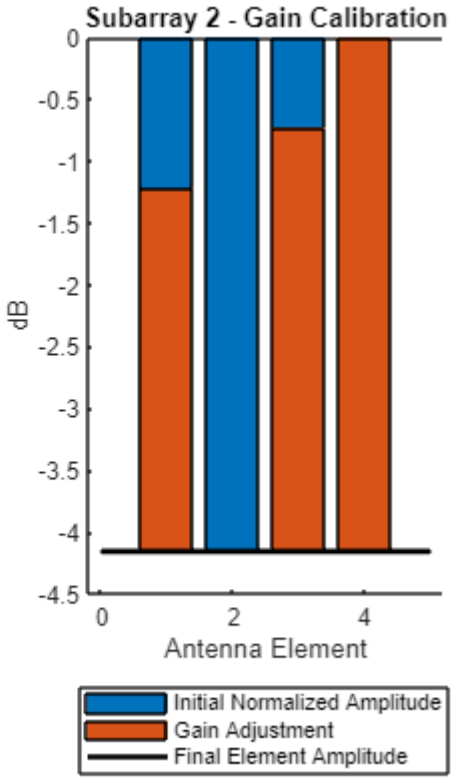
```
generateCalibrationWeights;
```

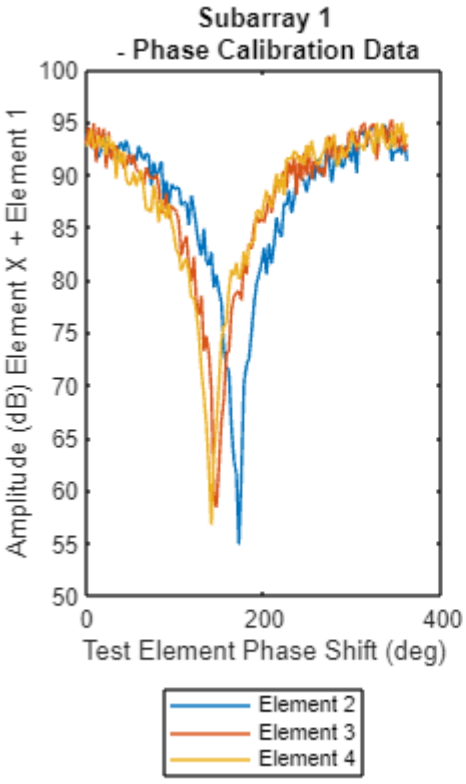

HB100 Frequency = 10.4106GHz
Amplitude (dB)
Frequency (GHz)
50
0
-50
-100
9.9
10
10.1
10.2
10.3
10.4
10.5
10.6

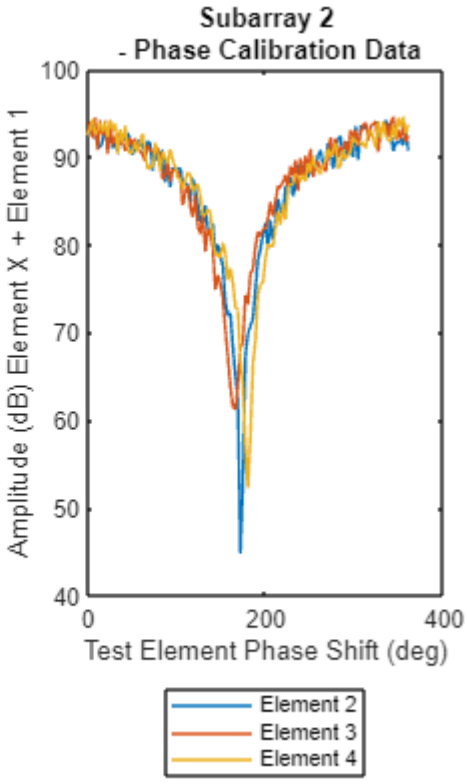

Subbarray 1 Gain Profile
Normalized Gain (dB)
Element Code Setting
Element 1
Element 2
Element 3
Element 4
0
-5
-10
-15
-20
-25
0
50
100
150

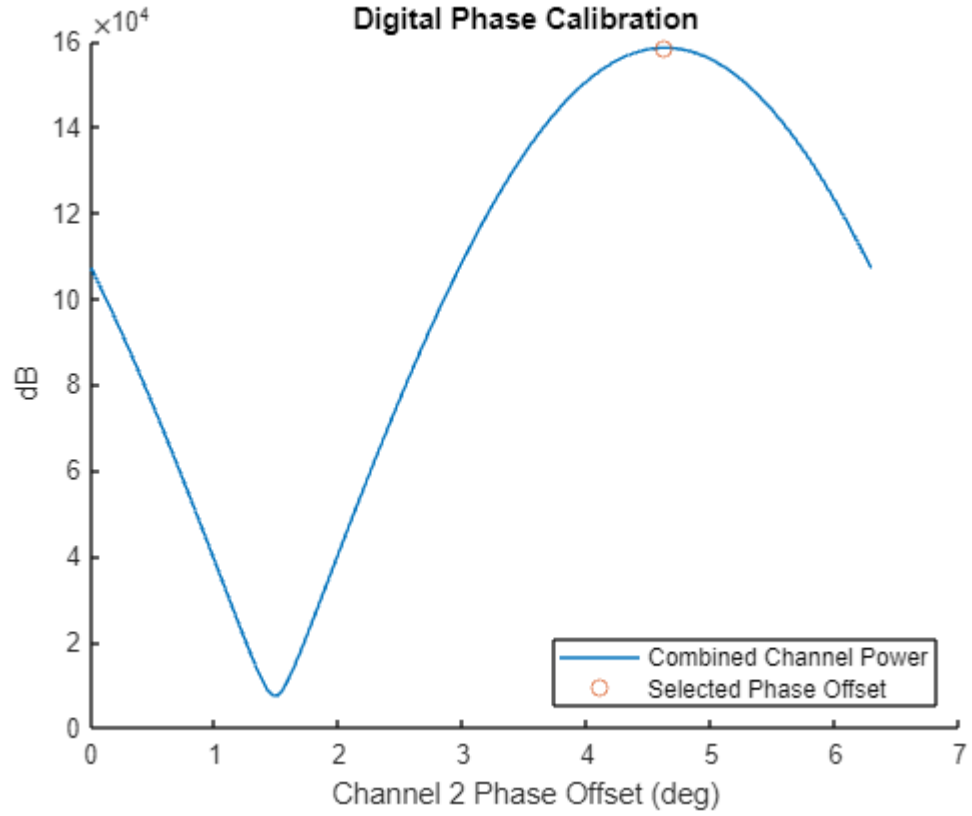

Subbarray 2 Gain Profile
Normalized Gain (dB)
Element Code Setting
Element 1
Element 2
Element 3
Element 4
0
-5
-10
-15
-20
-25
-30
0
50
100
150

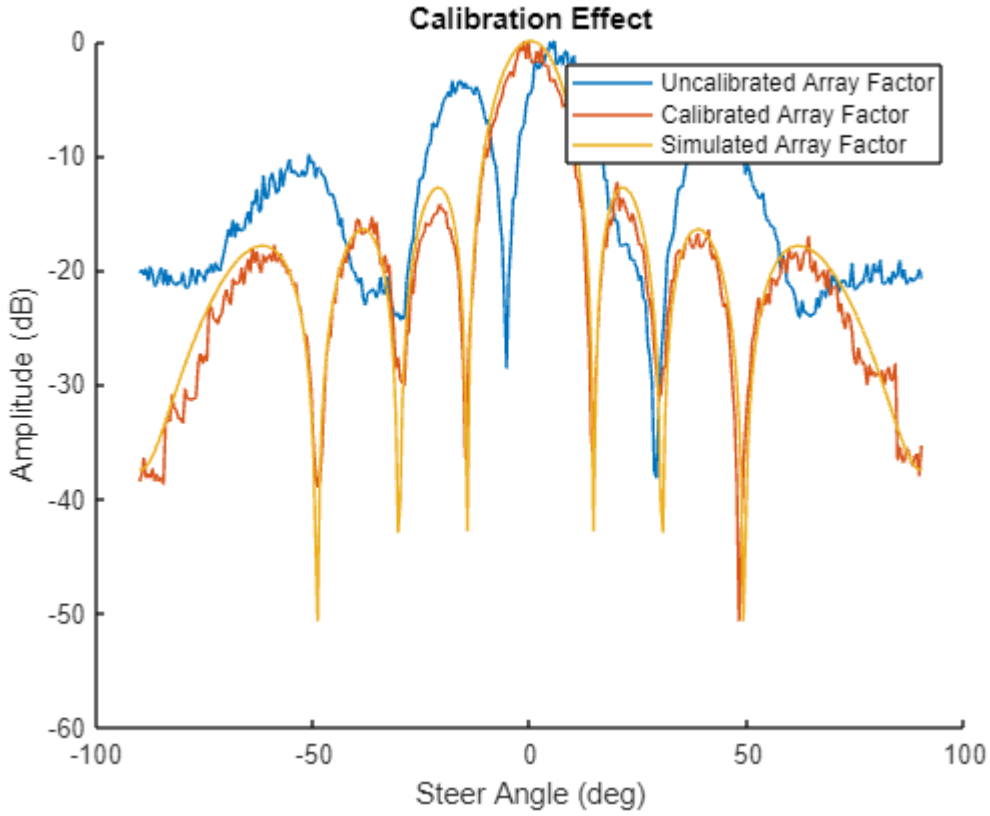

Subarray 1 - Gain Calibration
dB
Antenna Element
Initial Normalized Amplitude
Gain Adjustment
Final Element Amplitude


Subarray 2 - Gain Calibration
dB
Antenna Element
Initial Normalized Amplitude
Gain Adjustment
Final Element Amplitude


Subarray 1
- Phase Calibration Data
Amplitude (dB) Element X + Element 1
Test Element Phase Shift (deg)
Element 2
Element 3
Element 4

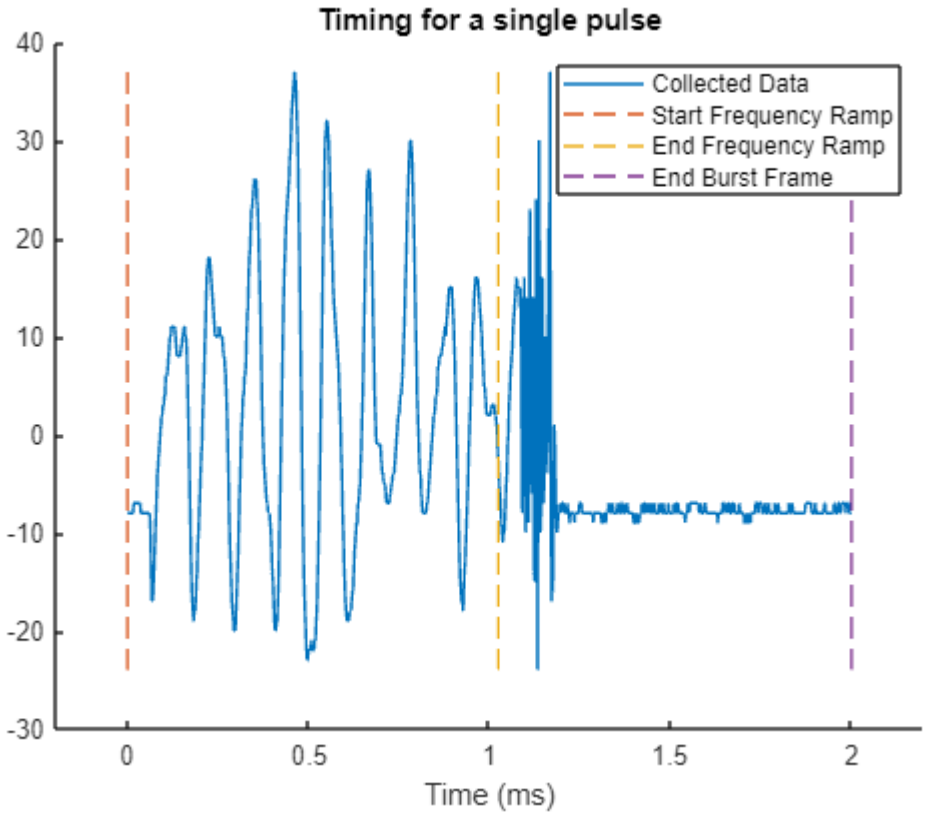

Subarray 2
- Phase Calibration Data
Amplitude (dB) Element X + Element 1
Test Element Phase Shift (deg)
Element 2
Element 3
Element 4

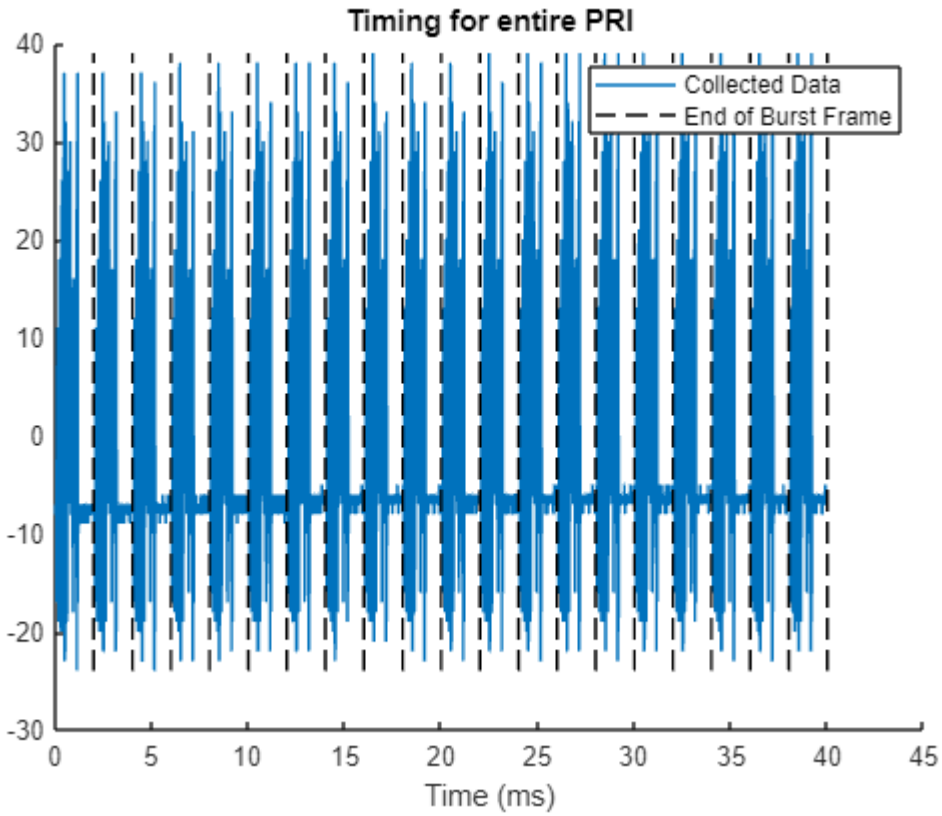


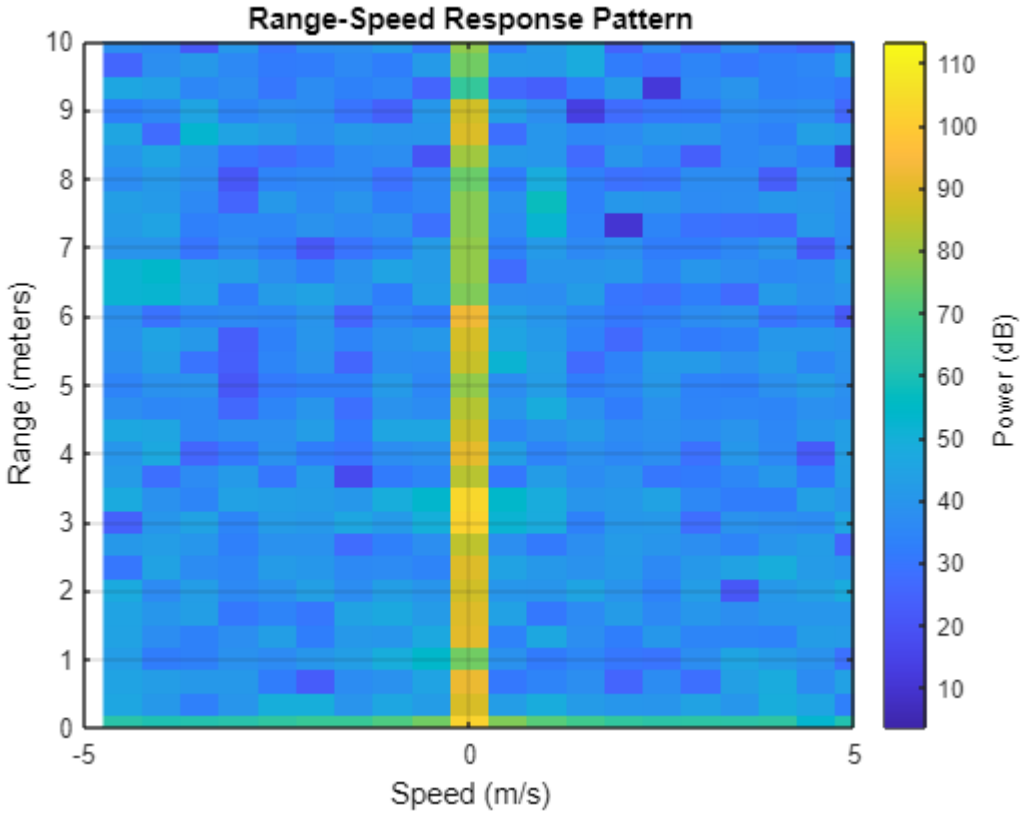


Radar Range Doppler Demo

```
fmcwDemo;
```


Timing for a single pulse
Collected Data
Start Frequency Ramp
End Frequency Ramp
End Burst Frame
40
30
20
10
0
-10
-20
-30
0
0.5
1
1.5
2
Time (ms)


Timing for entire PRI
Collected Data
End of Burst Frame
40
30
20
10
0
-10
-20
-30
0
5
10
15
20
25
30
35
40
45
Time (ms)



Radar Beamsteer Demo

This data was collected with the Vivaldi antenna at ~0 degrees boresight pointing at the antenna, for the purposes of demonstrating beemsteering in the radar configuration.

```
fmcwBeamsteeringDemo;
```