

## TFD Array Beam Steering Time Delay Cable Length Calculations

Delay Cable VoP 66%

$$\text{N-S delay cable length} = \Delta \times \text{VoP} = \text{Baseline} \times \sin\theta \times \text{VoP}$$

Array elements N-S baseline spacing (feet) 32

Desired beam N or S offset from zenith  $\theta$ : 5°

<b>A</b> Delay cable length (feet)	$\Delta$	1' 10"
<b>B</b> Delay cable length (feet)	$2\Delta$	3' 8-1/4"
<b>C</b> Delay cable length (feet)	$0.5\Delta$	11"
<b>D</b> Delay cable length (feet)	$2.5\Delta$	4' 7-1/4"

$$\text{E-W delay cable length} = \Delta \times \text{VoP} = \text{Baseline} \times \sin\phi \times \text{VoP}$$

Array elements E-W baseline spacing (feet) 32

Desired beam E or W offset from zenith $\phi$ :	0°	15°	30°	45°	60°
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Beam azimuth for eastward delay:	180°	108°	99°	95°	93°
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Beam azimuth for westward delay:	180°	252°	261°	265°	267°
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Beam elevation:	85°	74°	60°	45°	30°
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<b>E OR F</b> Delay cable length (feet)	$\Delta$	0"	5' 5-1/2"	10' 6-3/4"	14' 11-1/4"	18' 3-1/2"
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<b>G</b> Delay cable length (feet)	$0.5\Delta$	0"	2' 8-3/4"	5' 3-1/4"	7' 5-1/2"	9' 1-3/4"
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Use delay cables **E** for **eastward** beam steering

Use delay cables **F** for **westward** beam steering

Use delay cables **G** for **either**

