FREQUENCY PRIME (f90)

A specific operating range where you have optimized phase spread is called Frequency prime (f90)

This occurs where there is a phase difference from the shallow I.D. to shallow O.D. defects of 90 degrees. (also known as base frequency)

Additional frequencies are selected for mixing, landmarking (supports), flux density considerations, etc..

The **ASME Section V - Article VIII - Mandatory Appendix VIII**, states that the operating frequency has to be between the minimum and maximum base frequency as determined by the equations below:

Minimum base frequency = 4.8
Maximum base frequency 2.1 x f90 = 10

f90 = The frequency which generates a 90 degree phase separation between a shallow inside originated defect and a shallow outside originated defect.

P = Tube material resistivity (μ Ω *cm).
T = Tube/Material thickness.

$$Fp = \frac{10p}{T2}$$

$$Fp = \frac{4.8p}{T2}$$