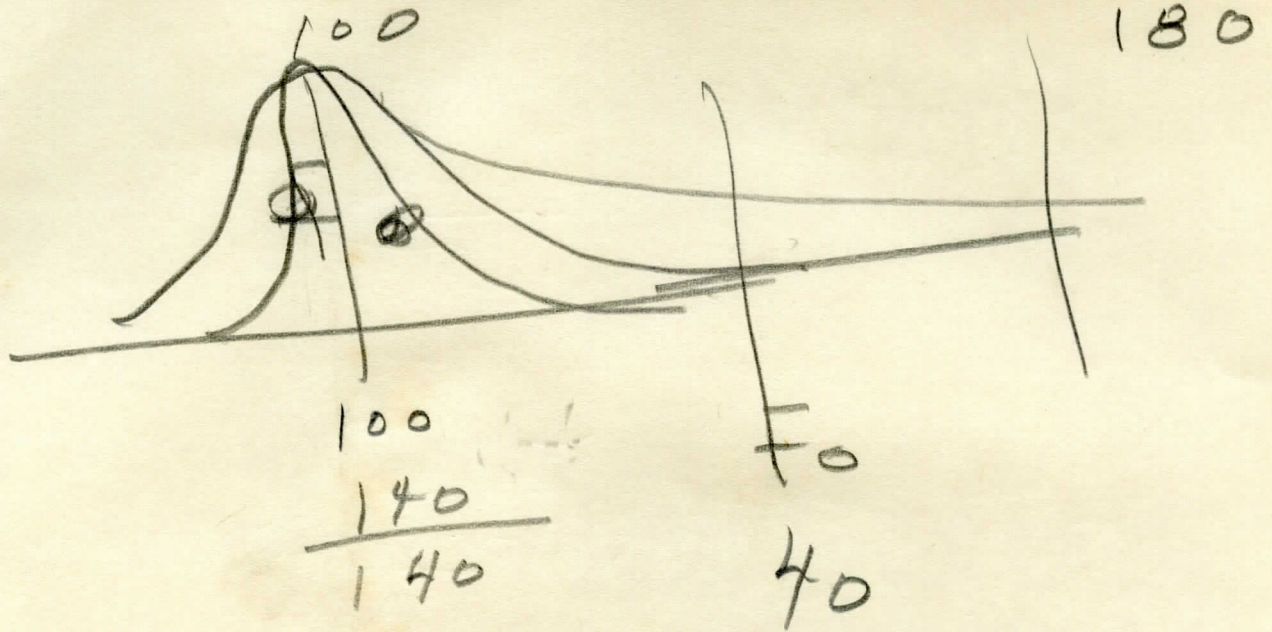
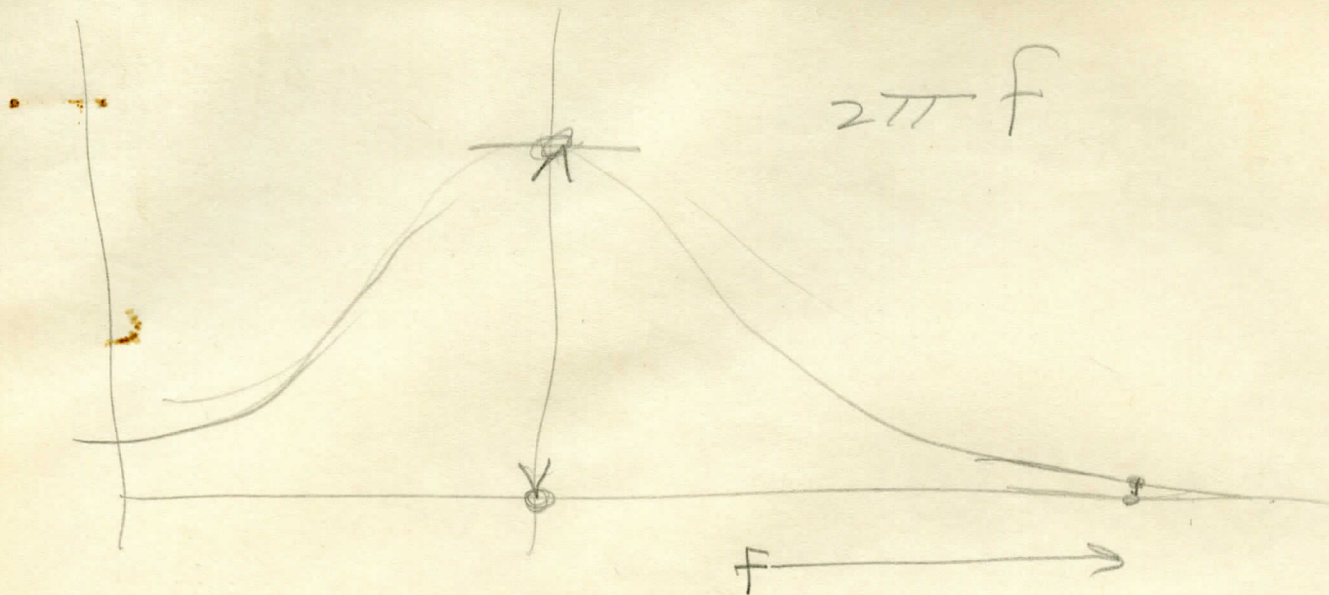
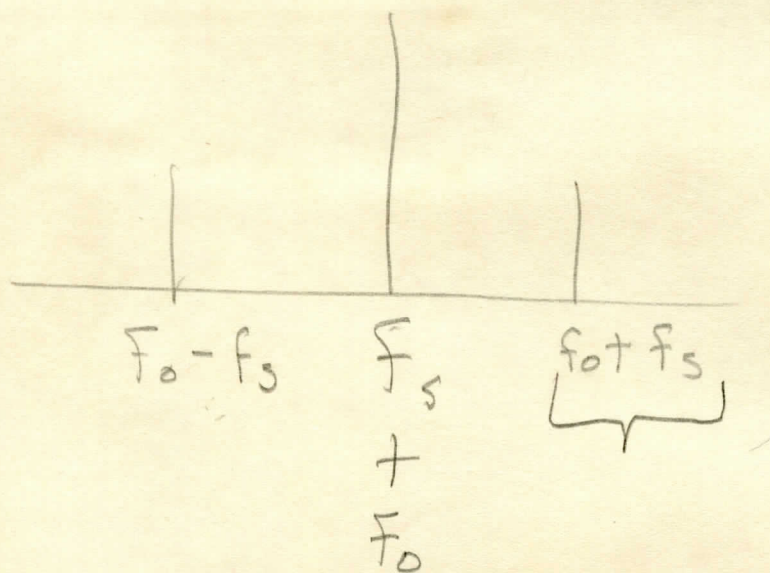
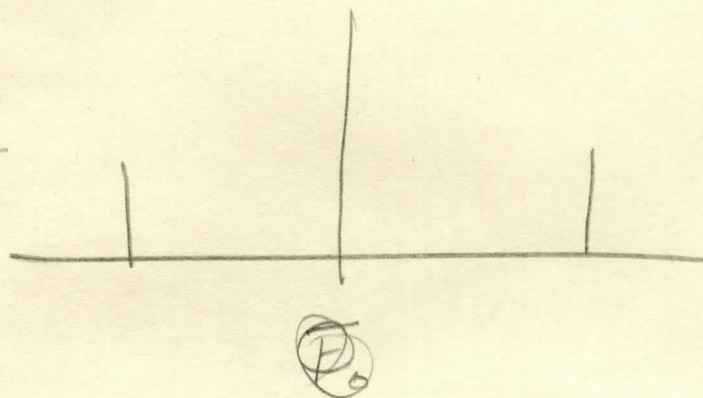






Z



$$Q = 50$$

$$50 = 20 \log \frac{I_2}{I_1}$$

$$2.50 \log$$

503

$$\frac{I_2}{I_1} = \cancel{177.0} \times$$

$$\approx 316.$$

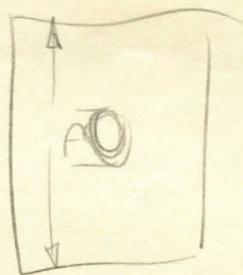
$$\frac{200}{1003} = 67$$

$$S_2 = 4.90$$

$$S_1 = 10.95$$

$$\frac{4.9}{10.95} = 44\%$$

$$\frac{20}{103} = 7 \text{ steps}$$



①

$$\frac{\text{Actual}}{I_{\text{resonance}}} = \frac{1}{(1+\delta) + jQ\delta \left(\frac{2+\delta}{1+\delta}\right)}$$

$$\frac{1}{316} = \frac{1}{(1+\delta) + j50\delta \left(\frac{2+\delta}{1+\delta}\right)}$$

$$(1+\delta) + j50\delta \left(\frac{2+\delta}{1+\delta}\right) = 316 \angle \theta$$

$$\theta \approx 90^\circ$$

$$\therefore 50\delta \left(\frac{2+\delta}{1+\delta}\right) = 316$$

$$1+\delta = X$$

$$\therefore \frac{I_{\text{res}}}{I_{\text{actual}}} = 316 \angle \theta$$

$$= 11.95 + j316$$

$$2\delta + \delta^2 = \frac{316}{50} (1+\delta)$$

$$\delta^2 + 2\delta - 6.32\delta - 6.32 = 0$$

$$\delta^2 - 4.32\delta - 6.32 = 0$$

$$\delta = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$\delta = \frac{4.32 \pm \sqrt{4.32^2 - 4(-6.32)}}{2}$$

$$\delta = \frac{4.32 \pm \sqrt{18.6 + 25.3}}{2}$$

$$\frac{6.63}{10.95}$$

$$a = Q\delta = 50 \times 10.95$$

$$\boxed{a \approx 550}$$

$$w = w_0(1+\delta)$$

$$\boxed{w = 11.95 w_0}$$

~~8-100~~

Q.P.D.P. $\times 2 \times 10^4 = 2 \times 10^4$

$$\frac{18.6}{25.3}$$

$$\frac{43.9}{43.9}$$

$$\frac{10.32}{2.03} = 5.08$$

$$Z = \frac{4.35 \pm \sqrt{18.19 + 52.3}}{2.03}$$

$$q_{ODS} = 10^9$$

$$5 \mu V$$

$$Z = \frac{-9 \pm \sqrt{81 - 400}}{2.03}$$

$$10^4 \times 5 \times 10^{-6} = 5 \times 10^{-2}$$

$$= 0.05 \mu$$

$$Z_c - 4.35 Z - 0.35 = 0$$

$$Z^2 + 0.9 - 0.35 Z - 0.35 = 0$$

$$Z^2 + Z = \frac{2.0}{3.15} (1+2)$$

$$2.15 Z + 2.15 = 1.15 \Delta \theta$$

$$2.0 Z \left(\frac{1+2}{5+2} \right) = 3.15$$

$$1+2 = 3$$

$$\theta = 90^\circ$$

$$(1+2) + 2.0 Z \left(\frac{1+2}{5+2} \right) = 3.15 \Delta \theta$$

$$\frac{1}{2.15} = \frac{(1+2) + 2.0 Z \left(\frac{1+2}{5+2} \right)}{1.15 \Delta \theta}$$

$$\frac{1}{1.15 \Delta \theta} = \frac{(1+2) + 2.0 Z \left(\frac{1+2}{5+2} \right)}{1.15 \Delta \theta}$$

$$m = 11.12 m^\circ$$

$$m = m^\circ (1+2)$$

$$q = 2.22$$

$$q = 2.0 \times 10^{-2}$$

①

2

$$a = 550 = Q \frac{f_{\text{off res.}}}{f_{\text{res.}}}$$

$$11 = \frac{f_{\text{off res.}}}{f_{\text{resonance}}}$$

$$14 \text{ dB} = 12 \text{ ratio}$$

$$2.5 = Q \frac{f}{f}$$

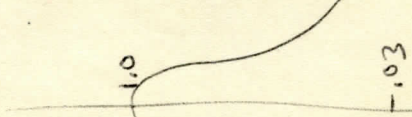
$$\frac{2.5}{50}$$

$$\frac{300}{1500}$$

$$\frac{f}{f}$$

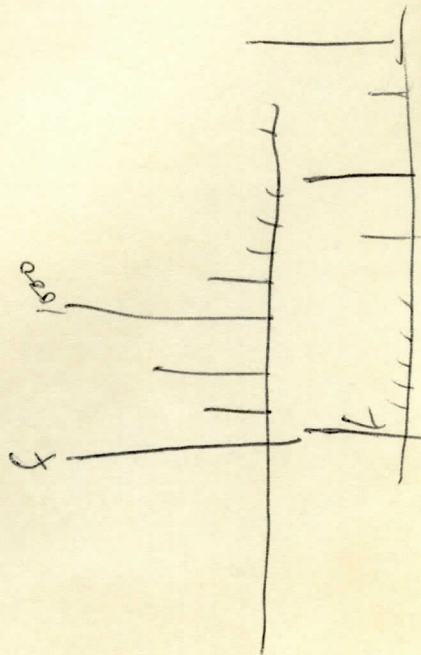
$$105 =$$

300 ± 15 Hz



550

QES



11 f_0

$$\frac{1}{158} =$$

$$158 =$$

$$\delta^2 + 2\delta = \frac{158}{50} (1 + \delta)$$

$$\delta^2 + 2\delta = 3.16 + 3.16\delta$$

$$\delta^2 - 1.16\delta - 3.16 = 0$$

$$\delta = \frac{-1.16 \pm \sqrt{1.16^2 + 4 \times 3.16}}{2}$$

$$\begin{array}{r} 1.34 \\ 1.34 \\ \hline 12.65 \\ 13.99 \\ 3.74 \end{array}$$

$$\delta = \frac{1.16}{4.90}$$

$$\delta =$$

$$\omega = 5.9\omega_0$$

$$\left(\frac{158}{158} \right) (158 \cdot 0.1 + 158 \cdot 0.1)$$

$$\frac{158 \cdot 0.1 + 158 \cdot 0.1}{158 \cdot 0.1 + 158 \cdot 0.1}$$

$$\frac{158 \cdot 0.1 + 158 \cdot 0.1}{158 \cdot 0.1 + 158 \cdot 0.1}$$

$$\frac{1}{20}$$

$$\frac{158}{316} = 0.5$$

$$316 \cdot 0.1 + 158 \cdot 0.1 = 0.158$$

