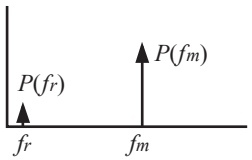
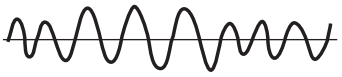
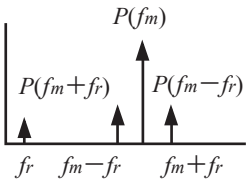
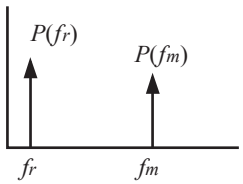
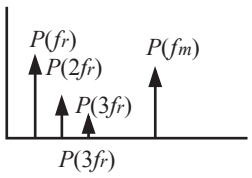
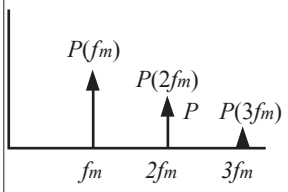
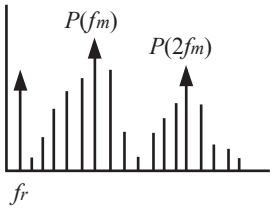
7.2 Analyze the cause of noise by frequency constituent (Low frequency zone)

When gear causes noise and oscillation, analysis at low frequency zone will show the frequency constituent as seen in Fig. 2. Therefore deviation for the cause of noise can be found.
For cases with unusual localized noise from gear, an analysis at high frequency zone will be accurate but its description is omitted here.

Fig. 2 Oscillation from gear (Low frequency)

Condition of Gear	Time domain	Frequency domain
Normal		
Misalignment of gear axis		
Offcentre		
Part Abnormality		
Wear		
Pitch deviation	 Amp.Mod.+Freg-Mod	

f_m : Engaging frequency

$f_m = z \times \frac{n}{60}$

z : Number of teeth

f_r : Revolution frequency

$f_r = \frac{n}{60}$

n : Revolution per minute