

Measurement/Searching techniques/Experiment

To identify the noise sources, electric current wave shapes were measured using a current probe as shown in Figure 1.2-2. First of all, the current in the line connected to the telephone where the acoustic noise problems occurred was measured. The current level was not high but could cause malfunction of the telephone. However, the wave shape had little relation with the telephone because inverter noise spectrum was included in the wave shape. Next, the current on the line connected to the DSU was measured (see Figure 1.2-3). The current level was $240 \text{ mA}_{\text{p-p}}$, which is not a low level. As a result of the investigations, it was confirmed that the electric current noise originated at the DSU power source because the noise disappeared when the DSU was turned off. The noise current from the DSU travelled over the internal cable. In the cable, mutual coupling phenomena occurred. The noise current from the DSU induced noise current on the line connected to the telephone. The current caused malfunction of the telephone and the noise was detected in the telephone.

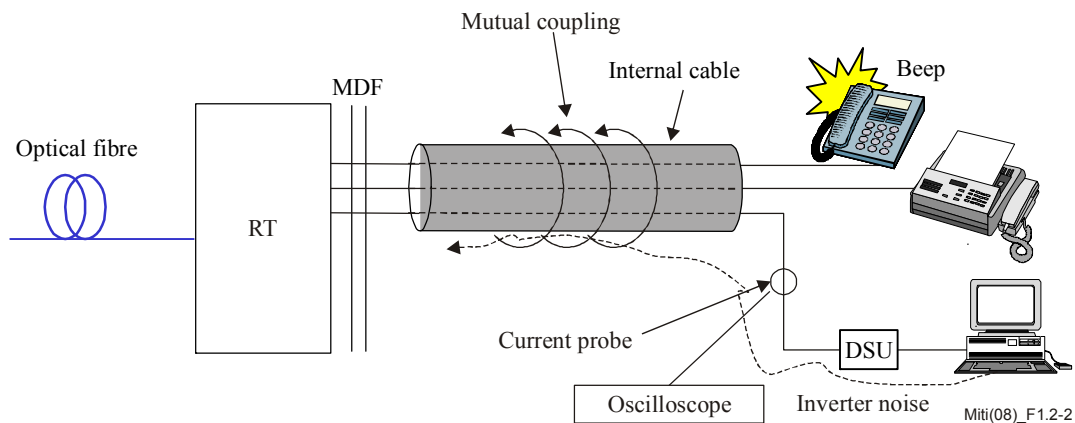


Figure 1.2-2 – Measurement of noise current on lines

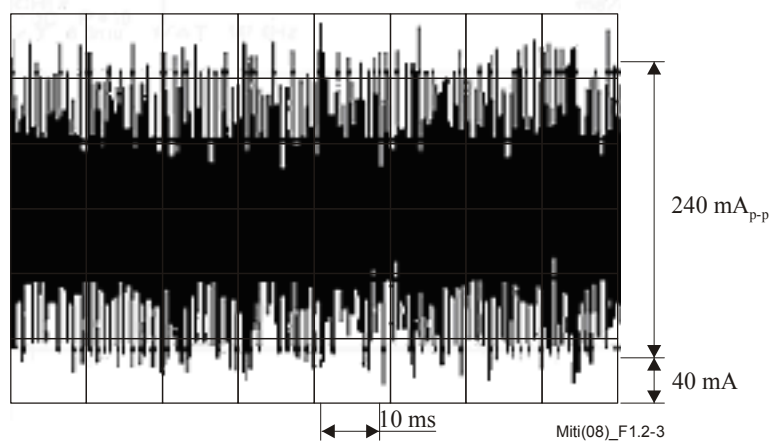


Figure 1.2-3 – Current wave shape in the line connected to the DSU