Problem 4.18

We are given that the IF filter has a bandwidth of 200 kHz centered on the frequency f_{IF} = 10.7 MHz. This filter will therefore pass frequencies inside the range defined by the two extremes:

low-end: 10.7 - 0.2 = 10.5 MHz

high-end: 10.7 + 0.2 = 10.9 MHz

The image lies inside the band 109.4 to 129.4 MHz, which is positioned well outside the passband of the IF filter. Therefore, the IF filter will suppress the translated band centered on the image frequency f_{image}.