

1. In class we discussed the spectral restrictions posed by the FCC when transmitting wireless signals. Unlicensed Industrial, Scientific and Medical (ISM) bands are covered in part 47. See file `00_FCC_part47_47cfr18.301.pdf` in Canvas.

You are asked to determine the values of the center frequency  $f_c$  and bandwidth  $B$  of the 915 MHz ISM band<sup>1</sup>.

2. A radio receives a sinusoidal signal of average power -70 dBm and its input port has impedance equal to  $50\ \Omega$ . What is the peak-to-peak voltage  $v_{PP}$  across the input port?
3. With reference to lecture note `03_example_amplifier_selection.pdf`, “Parameters of an RF amplifier: A practical example,” sketch carefully the input-output power characteristic of the ADL7003 low-noise amplifier whose parameters are listed in the second line of the table in slide 2.

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<sup>1</sup>This band is used, for example, by Generation 2 RFID (radio-frequency identification) systems and low-rate sensor networks