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| **A Radio Tuning Circuit** |
| A radio can be tuned into a particular station frequency by adjusting the capacitance in an *L-C* circuit. Suppose that the minimum capacitance of a variable capacitor in a radio is 4.18 pF.

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| Part A |  |
| What is the inductance Lof a coil connected to this capacitor if the oscillation frequency of the *L*-*C* circuit is 1.50 MHz, corresponding to one end of the AM radio broadcast band, when the capacitor is set to its minimum capacitance?

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| Hint A.1 | **Frequency of an *L-C* circuit** |
| ***Hint not displayed*** |
| Hint A.2 | **Angular frequency and cycles per second** |
| ***Hint not displayed*** |

**Express your answer in henrys to three significant figures.**

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| ANSWER: |

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| --- | --- | --- | --- | --- |
|  |   L = | ***Answer not displayed*** |   \rm H |  |

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| Part B |  |
| The frequency at the other end of the broadcast band is 0.549 MHz. What is the maximum capacitance C_maxof the capacitor if the oscillation frequency is adjustable over the range of the broadcast band?

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| Hint B.1 | **Frequency of an L-C circuit** |
| ***Hint not displayed*** |
| Hint B.2 | **Angular frequency and cycles per second** |
| ***Hint not displayed*** |

**Express your answer in farads to three significant figures.**

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| ANSWER: |

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|  |   C_max = | ***Answer not displayed*** |   \rm F |  |

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Please make sure you answer in the right unit required in the problem. Thanks