

UNIT 8: Radio Frequencies (I)

GET READY!

1. Discuss in pairs and write a small answer:

- How do mobile phones communicate over long distances?

- What is a cell in a mobile network?

- Why don't all phones use the same frequency?

READING



THE HERALD TIMES
Technology & Lifestyle

Dear Tech Editor:
We all use cell phones every day. But no one can tell me how these networks actually function. Can you?
—Sam Thompson

Dear Sam:
Great question. Allow me to explain.
Cell phones use **radio** waves to transmit sound. When someone makes a call, a phone uses a pair of frequencies called a **channel**. This is called **full-duplex**, and it allows both parties to speak and listen simultaneously. Each area has a limited number of channels available at a time. For example, the **bandwidth** of a cell tower might be between 800-1200 **MHz**.
To allow multiple connections at once, a city or region is divided into a **hexagonal grid**. Each **cell** has a **cell site** with an **antenna**. And these antennas each have a limited **range**.
Cells can share frequencies as long as they are not **adjacent**. That system is called **frequency reuse**. And even when a phone leaves its coverage area, it can still connect to a **roaming partner's** cells.
Hope that helps! —Tech Ed.

1. What is the main idea of the text?

- a) How to repair a mobile phone
- b) How mobile networks use radio frequencies
- c) How to install antennas

2. Read the sentences. Are they true or false? Correct the false ones.:

- a) Each base station covers a particular cell.

b) A roaming partner is a device indicating that a phone is outside its coverage area.

c) A full-duplex system uses two separate frequencies at the same time.

VOCABULARY

1. Match the words or phrases with the definitions (A–H).

antenna · adjacent · full-duplex · cell · frequency reuse · bandwidth · radio · MHz

A beside something: _____

B the transmission of electromagnetic waves: _____

C a division within a city or región: _____

D the range of frequencies that a tower can transmit: _____

E a physical device used to transmit or receive signal: _____

F a system by which different cells can share the same frequencies: _____

G the unit of measurement for frequencies: _____

H a system that uses two frequencies for call transmisión: _____

4. Read the sentence pairs. Choose which word or phrase best fits each blank.

range · cell site

A) At the _____, there is a large antenna on top of the building.

B) The caller was outside the _____ of the antenna, so his call would not connect.

channel · roaming partner

A) The students learned that a _____ is made up of two frequencies.

B) Connecting to a _____ usually costs extra money.

antenna · cell

A) A(n) _____ can be measured using megahertz.

B) When the _____ broke, the man went to the cell site to fix it.

SPEAKING – Say it Right: 🔥 Tech Challenge 🔥

You will work in two teams. The objective is to speak like a technician using precise technical vocabulary.

How it works

- One student from Team A comes to the front.
- A team member takes a card.
- The student has 30 seconds to produce 1–2 sentences per card.
- Try to produce as many correct sentences as possible.

Your sentences must:

- Use the verb on the card
- Include at least one of the nouns
- Include a connector: because / so / therefore
- ⚠ Forbidden verbs ⚠ You cannot use: make · do · have

The other team must:

- Listen carefully
- Decide if the sentence(s) are accurate. If not, explain why
- Improve the sentence(s) using more precise vocabulary
- Ask one follow-up question

Scoring

Speaking team:

- Correct sentence → +1
- Clear technical explanation → +1
- 🔥 Challenge: use the passive voice → +1

Other team (evaluation team):

- Detect a mistake → +1
- Improve the sentence → +1 point
- Ask a relevant question → +1

Important

- Speak clearly and use technical vocabulary
- Avoid simple or vague sentences
- Try to explain how the system works
- Corrections must be justified