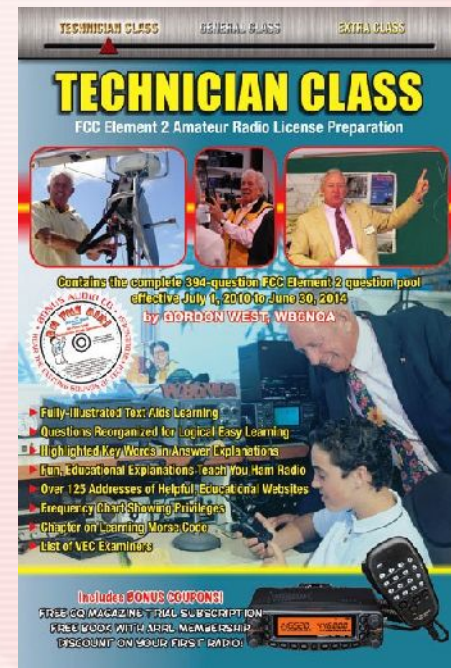
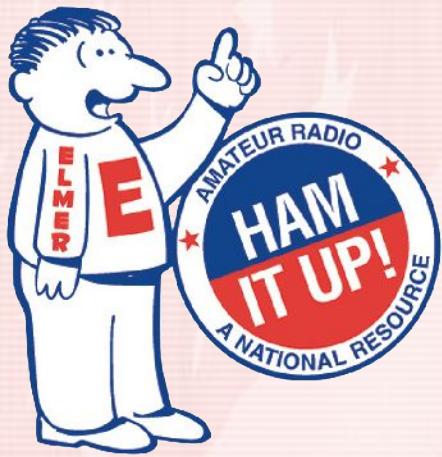


Technician Licensing Class

Repeaters

Presented by



Amateur Radio Technician Class

Element 2 Course Presentation

➤ **ELEMENT 2 SUB-ELEMENTS** (Groupings)

- **About Ham Radio**
- **Call Signs**
- **Control**
- **Mind the Rules**
- **Tech Frequencies**
- **Your First Radio**
- **Going On The Air!**
- **Repeaters**
- **Emergency!**
- **Weak Signal Propagation**

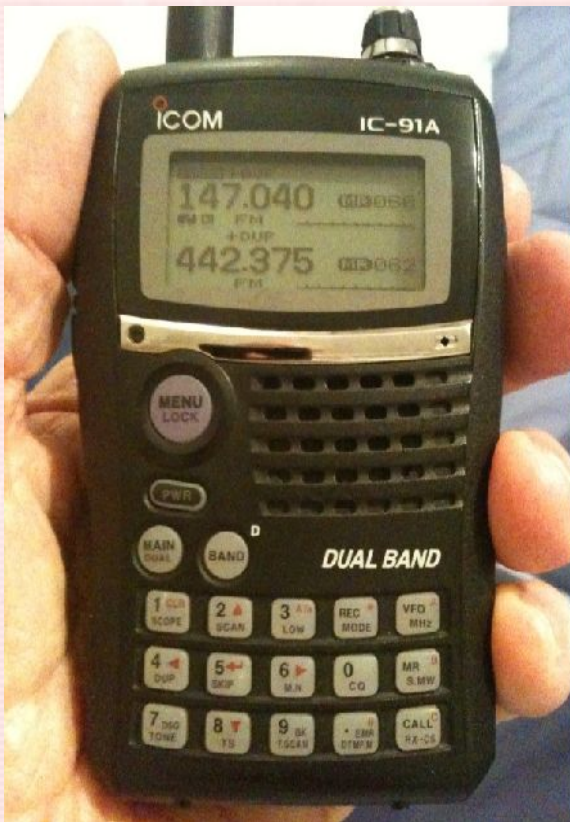
Amateur Radio Technician Class Element 2 Course Presentation

➤ **ELEMENT 2 SUB-ELEMENTS** (Groupings)

- **Talk to Outer Space!**
- **Your Computer Goes Ham Digital!**
- **Multi-Mode Radio Excitement**
- **Run Some Interference Protection**
- **Electrons - Go With the Flow!**
- **It's the Law, per Mr. Ohm!**
- **Go Picture These!**
- **Antennas**
- **Feed Me with Some Good Coax!**
- **Safety First!**

Repeaters

Before you press the PTT switch, LISTEN to make sure the frequency is clear for use.

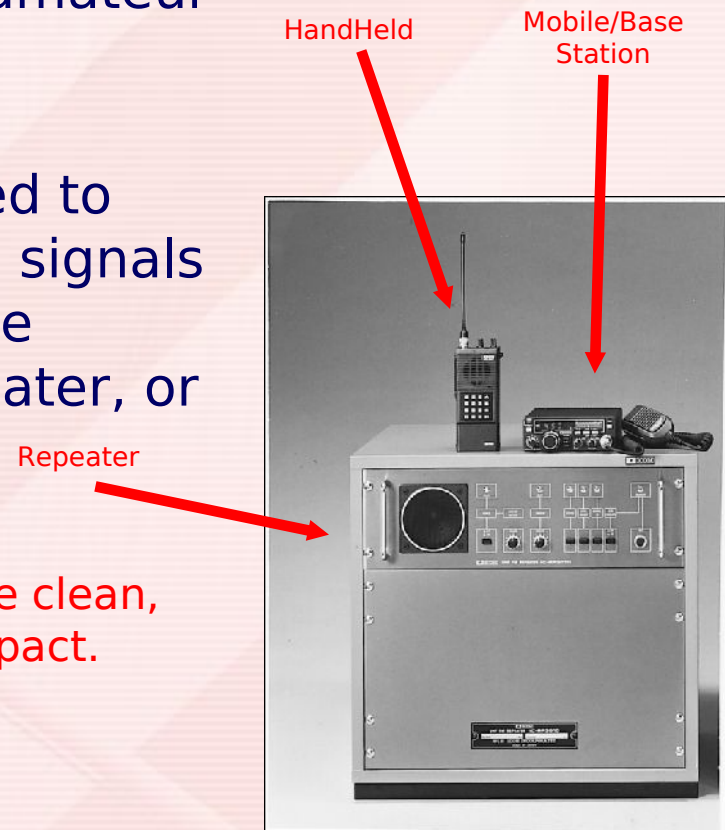


And when you get your license, listen for a week on a repeater to get the feel for how to communicate.

Repeaters

- T1F9 A Repeater station is the type of amateur station that simultaneously retransmits the signal of another amateur station on a different channel or channels.
- T1D7 Amateur stations are authorized to automatically retransmit the radio signals of other amateur stations when the signals are from an auxiliary, repeater, or space station.

A repeater: Nice clean, neat, and compact.



Repeaters

- T4B11 The difference between the repeater's transmit and receive frequencies describes the common meaning of the term “repeater offset”.
 - T2A1 The most common repeater frequency offset in the 2 meter band is plus or minus 600 kHz.
 - T2A3 Plus or minus 5 MHz is a common repeater frequency offset in the 70 cm band.
 - T2B4 Common problems that cause you to be able to hear but not access a repeater even when transmitting with the proper offset:
 - The repeater receiver requires audio burst for access
 - The repeater receiver requires a CTCSS tone for access
 - CTCSS – **C**ontinuous **T**one **C**ontrol **S**quelch **S**ystem
 - The repeater receiver may require a DCS tone sequence for access
 - DCS – **D**igital **C**ode **S**quelch
- All of these choices are correct.

Repeaters

What repeaters really look like.



**McKinney, Tx
442.575 UHF
Repeater**

N5GI



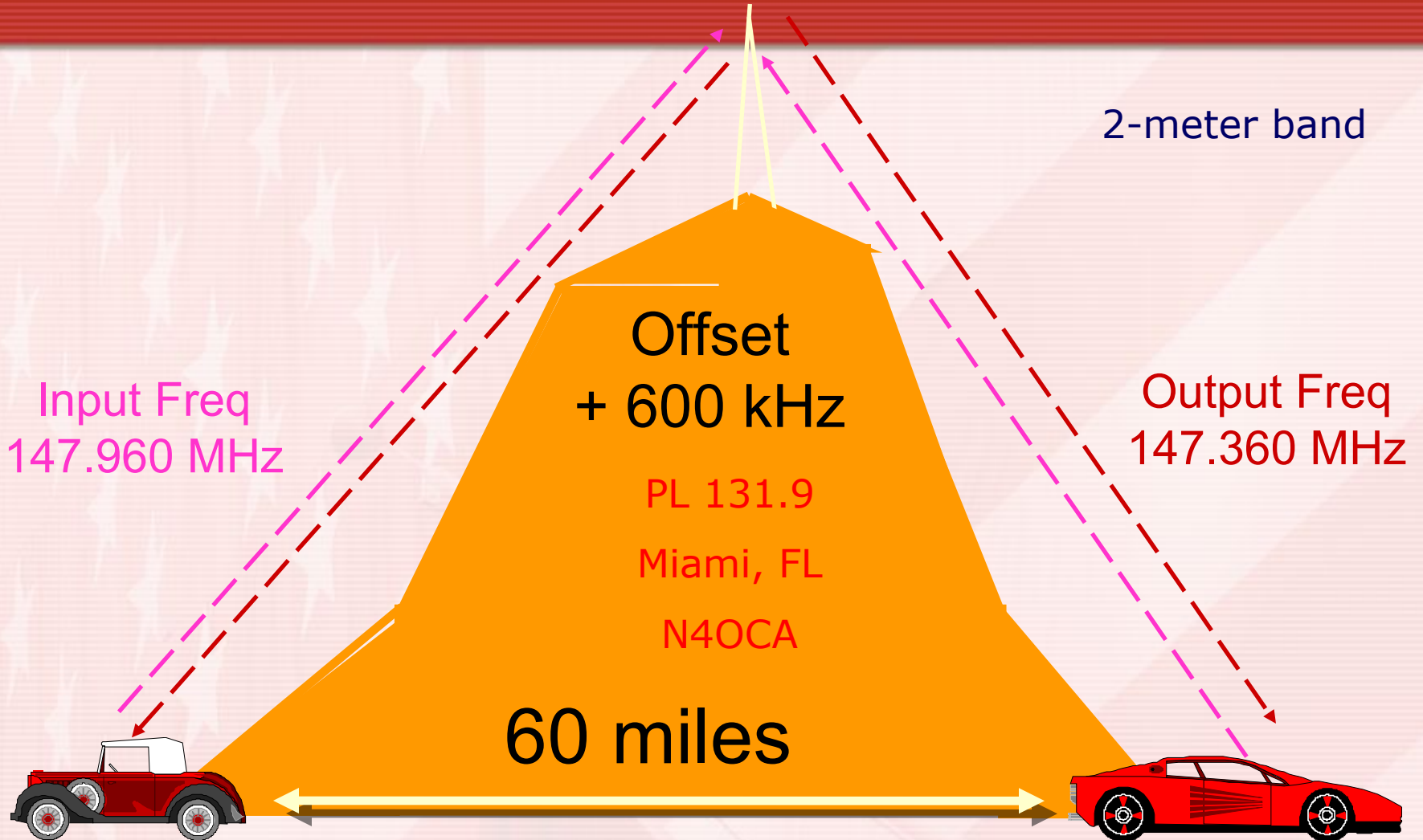
**Dallas, Tx 442.025
UHF Repeater
K5TIT**



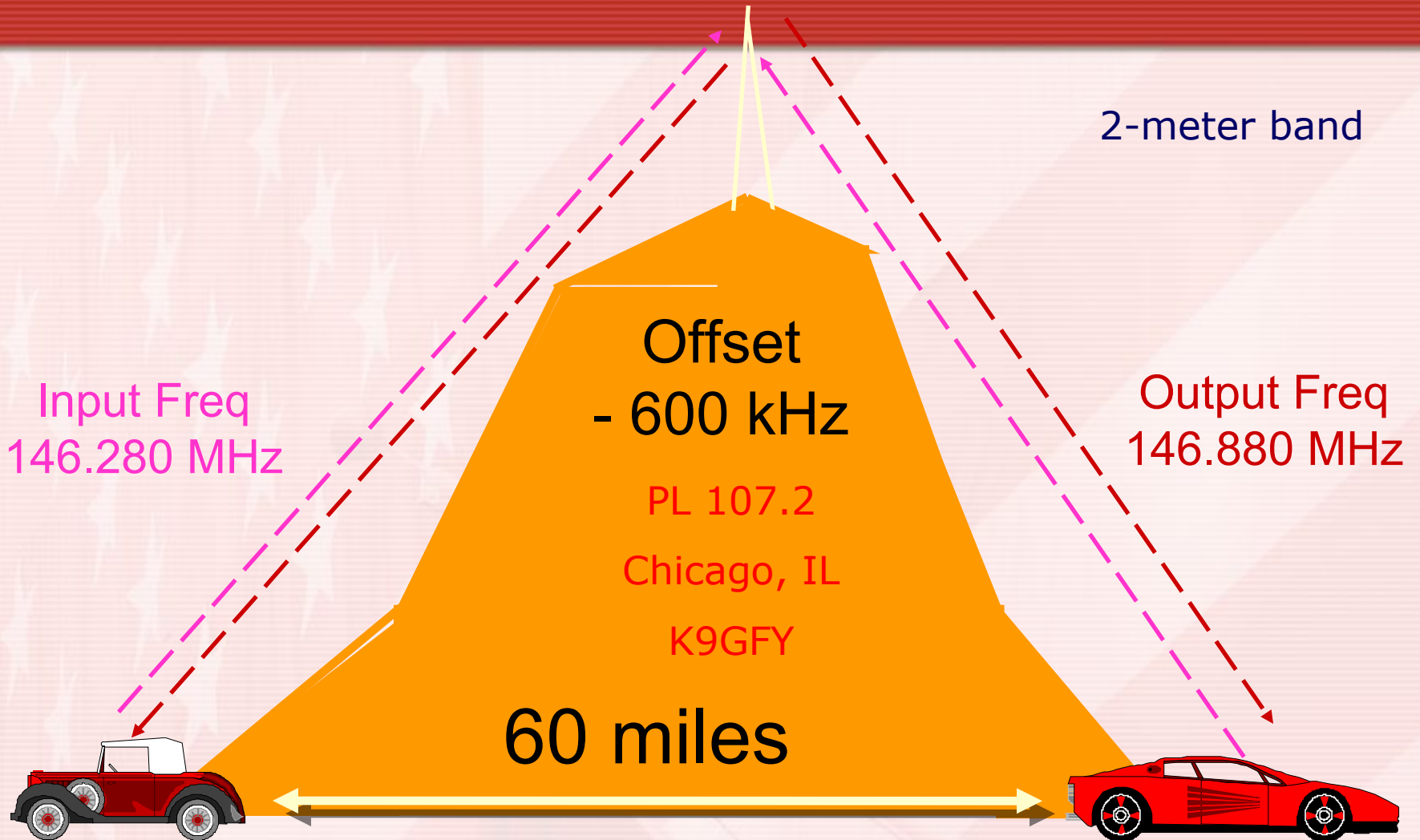
**McKinney, Tx
145.350 VHF
Repeater**

N5GI

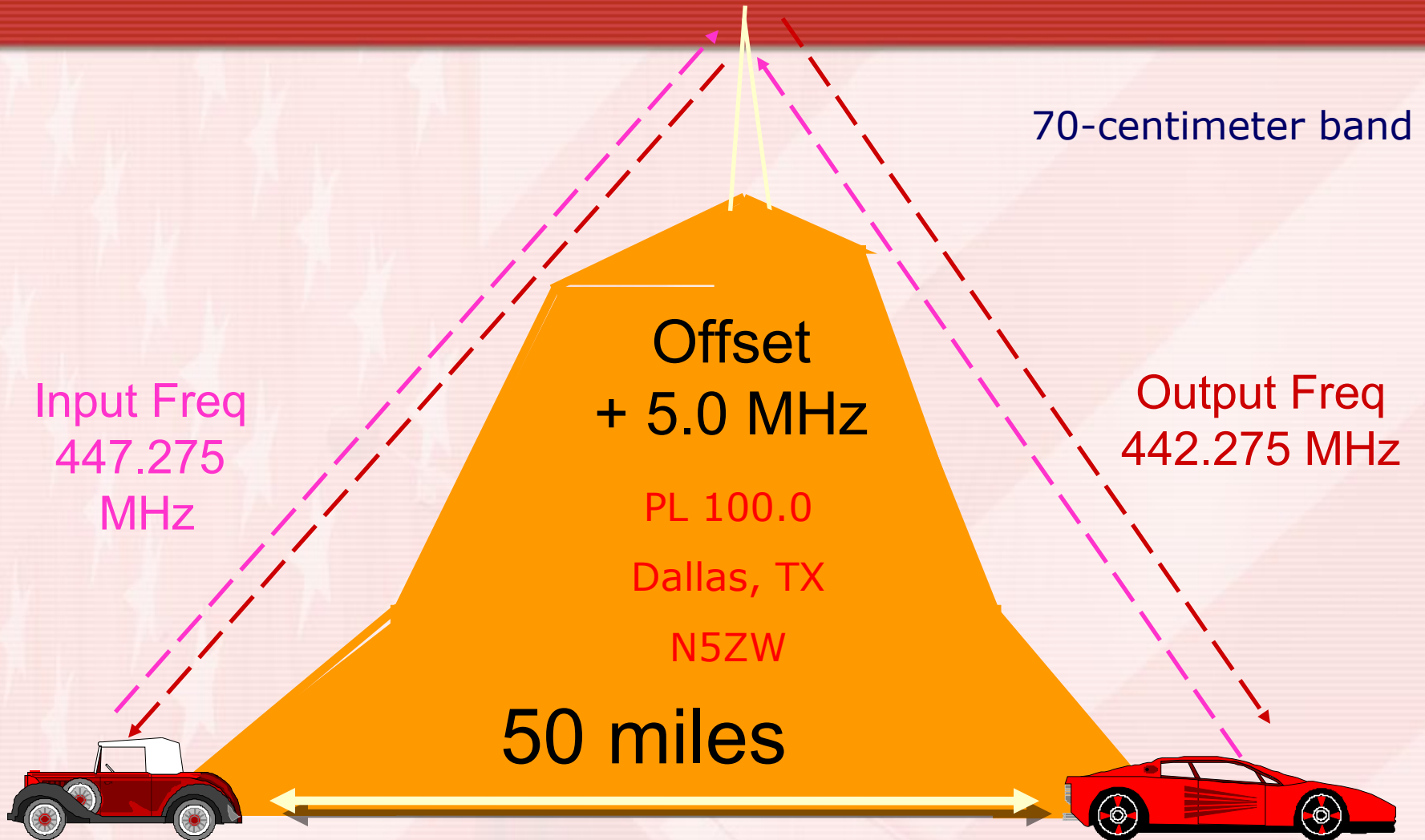
Repeaters



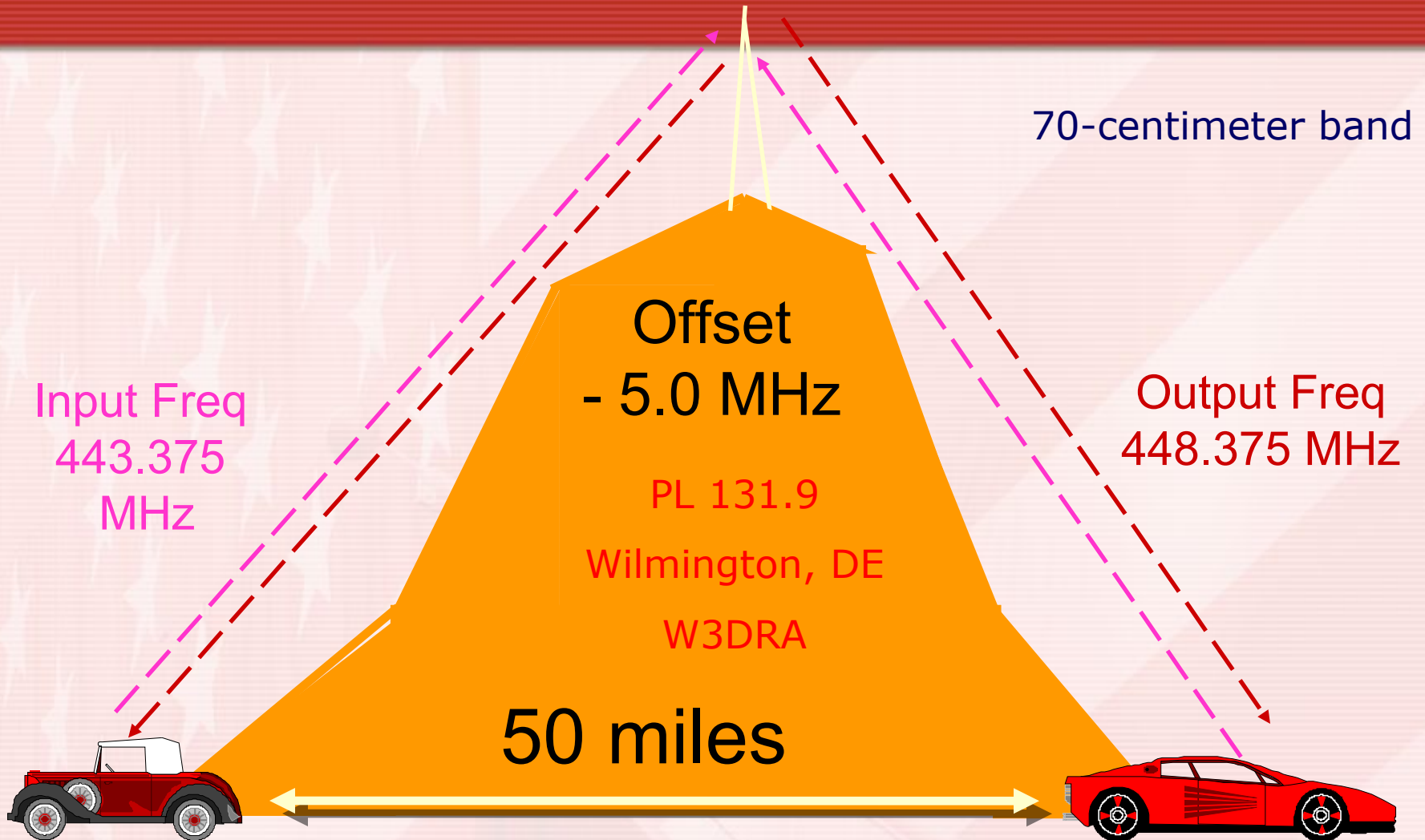
Repeaters



Repeaters



Repeaters



Repeaters

- T2B2 CTCSS is the term used to describe the use of a sub-audible tone transmitted with normal voice audio to open the squelch of a receiver. (CTCSS - Continuous Tone-Coded

Squelch System)

- Also called a PL tone

CTCSS Tones In Use

67.0 Hz	94.8 Hz	131.8 Hz	171.3 Hz	203.5 Hz
69.3 Hz	97.4 Hz	136.5 Hz	173.8 Hz	206.5 Hz
71.9 Hz	100.0 Hz	141.3 Hz	177.3 Hz	210.7 Hz
74.4 Hz	103.5 Hz	146.2 Hz	179.9 Hz	218.1 Hz
77.0 Hz	107.2 Hz	151.4 Hz	183.5 Hz	225.7 Hz
79.7 Hz	110.9 Hz	156.7 Hz	186.2 Hz	229.1 Hz
82.5 Hz	114.8 Hz	159.8 Hz	189.9 Hz	233.6 Hz
85.4 Hz	118.8 Hz	162.2 Hz	192.8 Hz	241.8 Hz
88.5 Hz	123.0 Hz	165.5 Hz	196.6 Hz	250.3 Hz
91.5 Hz	127.3 Hz	167.9 Hz	199.5 Hz	254.1 Hz

- T2A9 A brief statement of saying your call sign is often used in place of "CQ" to indicate that you are listening on a repeater

Repeaters

- T1A8 A Frequency coordinator recommends transmit/receive channels and other parameters for auxiliary and repeater stations.
- T1A9 Amateur operators in a local or regional area that are eligible to be auxiliary or repeater stations select a frequency coordinator.
- T1A11 An auxiliary station transmits signals over the air from a remote receive site to a repeater for retransmission.
- T1F5 Call sign identification is required for a station transmitting phone signals by sending the call sign using CW or phone emission



Repeaters can identify with a voice message announcing their call sign, or use Morse code to send out their station call letters

Element 2 Technician Class Question Pool

Repeaters

Valid July 1, 2010

Through

June 30, 2014



T11-05 What type of amateur station
simultaneously
another amateur
channel or channels?

retransmits the signal of
station on a different

- A. Beacon station
- B. Earth station
- C. Repeater station
- D. Message forwarding station

authorized to
the radio
stations?

automatically retransmit
signals of other amateur

- A. When the signals are from an auxiliary, beacon, or Earth station
- B. When the signals are from an auxiliary, repeater, or space station
- C. When the signals are from a beacon, repeater, or space station
- D. When the signals are from an Earth, repeater, or space station

T4B11

Which of the following describes the common meaning of the term “repeater offset”?

- A. The distance between the repeater's transmit and receive antennas
- B. The time delay before the repeater timer resets
- C. The difference between the repeater's transmit and receive frequencies
- D. The maximum frequency deviation permitted on the repeater's input signal

T2A01 What is the most common repeater frequency offset in the 2 meter band?

- A.** Plus 500 kHz
- B.** Plus or minus 600 kHz
- C.** Minus 500 kHz
- D.** Only plus 600 kHz

12A05 What is a common repeater frequency offset in the 70 cm band?

- A. Plus or minus 5 MHz
- B. Plus or minus 600 kHz
- C. Minus 600 kHz
- D. Plus 600 kHz

T2B04

cause
even

Which of the following common problems might you to be able to hear but not access a repeater when transmitting with the proper offset?

- A. The repeater receiver requires audio tone burst for access
- B. The repeater receiver requires a CTCSS tone for access
- C. The repeater receiver may require a DCS tone sequence for access
- D. All of these choices are correct

T2B02

of a
voice

What is the term used to describe the use
sub-audible tone transmitted with normal
audio to open the squelch of a receiver?

- A. Carrier squelch
- B. Tone burst
- C. DTMF
- D. CTCSS

T2A09

What brief statement is often used in place of "CQ" to indicate that you are listening on a repeater?

- A. Say "Hello test" followed by your call sign
- B. Say your call sign
- C. Say the repeater call sign followed by your call sign
- D. Say the letters "QSY" followed by your call sign

17/100 Which of the following entities recommends other transmit/receive channels and repeater stations? parameters for auxiliary and

- A. Frequency Spectrum Manager
- B. Frequency Coordinator
- C. FCC Regional Field Office
- D. International Telecommunications Union

T1A09 Who selects a frequency coordinator?

- A. The FCC Office of Spectrum Management and Coordination Policy
- B. The local chapter of the Office of National Council of Independent Frequency Coordinators
- C. Amateur operators in a local or regional area whose stations are eligible to be auxiliary or repeater stations
- D. Regional field Office

signals over the air from a remote
receive site to a repeater for
retransmission?

- A. Beacon station
- B. Relay station
- C. Auxiliary station
- D. Message forwarding station

T1F05 What method of call sign identification is required for a station transmitting phone signals?

- A.** Send the call sign followed by the indicator RPT
- B.** Send the call sign using CW or phone emission
- C.** Send the call sign followed by the indicator R
- D.** Send the call sign using only phone emission