Requirement 9

Do ONE of the following, (a OR b OR c):

a. AMATEUR RADIO    b. BROADCAST RADIO          c. SHORTWAVE LISTENING

9c. SHORTWAVE LISTENING

9.c.1 Listen across several short-wave bands for four one-hour periods, - at least one period during the daylight hours and at least one period at night. Log the stations properly and locate them geographically on a globe.

You can use a shortwave receiver coupled with a long wire antenna to hear radio broadcasts from around the world! The broadcasts you receive will change from day to night because the ionosphere from which the shortwave signals are reflected around the world changes with sunlight conditions. Some shortwave stations will be received in the daytime, and others only at night. Experiment and log your results!

You may get better results at night between about 5 MHz and 10 MHz tuning frequencies. You will probably have to tune to 10 MHz or higher during the daylight hours to receive stations. During the “gray line” period of sunrise and sunset, you may get very interesting mixtures of performance!

You will likely hear many different languages on shortwave broadcasts. It may be difficult to identify where the stations are coming from.

When you log a station be sure to record the following information:

- Date & Time of Listening
- Station Frequency
- Station Name / Call Sign
- Station Location
- Notes about the broadcast content (music types, languages, content, etc.)

Also record your evaluation of the station receive quality using SINPO. This signal report means rates the station reception on scales of 1 to 5, with 5 always being the best in each SINPO category. The five SINPO categories stand for the following characteristics that you should rate on the 1 to 5 scale each:

<table>
<thead>
<tr>
<th>Signal (S)</th>
<th>Interference (I)</th>
<th>Noise (N)</th>
<th>Propagation (P)</th>
<th>Overall (O)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Excellent</td>
<td>1-None</td>
<td>1-None</td>
<td>1-None</td>
<td>1-Excellent</td>
</tr>
<tr>
<td>2-Good</td>
<td>2-Slight</td>
<td>2-Slight</td>
<td>2-Slight</td>
<td>2-Good</td>
</tr>
<tr>
<td>3-Fair</td>
<td>3-Moderate</td>
<td>3-Moderate</td>
<td>3-Moderate</td>
<td>3-Fair</td>
</tr>
<tr>
<td>4-Poor</td>
<td>4-Severe</td>
<td>4-Severe</td>
<td>4-Severe</td>
<td>4-Poor</td>
</tr>
<tr>
<td>5-Barely audible</td>
<td>5-Extreme</td>
<td>5-Extreme</td>
<td>5-Extreme</td>
<td>5-Unusable</td>
</tr>
</tbody>
</table>
9.c.2 For several major foreign stations (BBC in Great Britain or HCJB in Ecuador, for example), list several frequency bands used by each.

Here is a link to a list of International Shortwave Broadcasters. Each station has a listing of the frequency bands used by each broadcaster. [http://www.primetimeshortwave.com/radio.html](http://www.primetimeshortwave.com/radio.html)

9.c.3 Compare your daytime and nighttime logs; note the frequencies on which your selected stations were loudest during each session. Explain differences in the signal strength from one period to the next.

The key to this requirement is thinking about where the sunlit portion of the earth was during your listening time! You may want to use a globe to help think about this, and examine the radio station’s position as well as your own.

Look back at requirement 2 and the discussion of the reflection of radio waves from the ionosphere. Shortwave radio signals travel long distances this way, bouncing from ionosphere to ground and back in many bounces. Think about how far each station in your log traveled to get to your receiver.

Any of the links below show the daytime and nighttime portions of the earth: You can enter a specific date and time of your shortwave listening to see what parts of the earth were in daytime and what parts were in nighttime when you listened, or you can see the present time day-night situation.


[http://www.die.net/earth/](http://www.die.net/earth/)


Learn more about Shortwave Listening at these sites:

[http://ac6v.com/swl1.htm](http://ac6v.com/swl1.htm)


[http://www.dxing.com/swlintro.htm](http://www.dxing.com/swlintro.htm)

[http://www.kwarc.org/swl/sw_intro.html](http://www.kwarc.org/swl/sw_intro.html)


[http://support.radioshack.com/support_electronics/doc66/66356.htm](http://support.radioshack.com/support_electronics/doc66/66356.htm)