Where are we with audio intelligibility in P25?

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Audio Quality Testing

- Firefighter reports showed that some background noises created by firefighting equipment can interfere with digital communication.
- PSCR worked with practitioners to develop and implement tests that measure the operation of digital radios, and also tested mitigation techniques for the problems.
How valid are the testing methods?

No significant differences were observed in intelligibility between the use of a talker vs the HATS.

Changes in P25 Intelligibility Since 2008

- Improvements to best practices and vocoder make a difference
- There are still differences between analog and P25, but the gaps are narrowing

Intelligibility scores of mask with voice port and PASS alarm noise.
Changes in P25 Intelligibility Since 2008 (Audio Samples)

<table>
<thead>
<tr>
<th></th>
<th>Mask 2008</th>
<th>PASS Alarm 2008</th>
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</thead>
<tbody>
<tr>
<td>(no background noise)</td>
<td>59%</td>
<td>21%</td>
</tr>
<tr>
<td>Mask 2011</td>
<td>69%</td>
<td>50%</td>
</tr>
<tr>
<td>(updated best practices)</td>
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<tr>
<td>PASS Alarm 2011 (updated vocoder)</td>
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New Information

- Different PASS alarms do not have different impacts on intelligibility.
- Using a mask with an internal mic improves intelligibility, but comes at a price.
- There are channel conditions where P25 has higher intelligibility than analog FM.

Intelligibility scores for static degraded channels with no mask and no background noise.
Demonstration