AVIONICS QUALIFICATION POLICY

2018 ANNUAL REPORT

Prepared for:
The Aviation Industry

January 7, 2019
# 2018 AQP Test Results Summary

<table>
<thead>
<tr>
<th>Tested Results Category*</th>
<th>Number of Tested Suites</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passed</td>
<td>7</td>
<td>44%</td>
</tr>
<tr>
<td>Waived: Non-Network Impacting</td>
<td>3</td>
<td>19%</td>
</tr>
<tr>
<td>Waived – Network Impacting</td>
<td>2</td>
<td>12%</td>
</tr>
<tr>
<td>Failed</td>
<td>4</td>
<td>25%</td>
</tr>
</tbody>
</table>

*Final AQP Status – In many cases the manufacturer corrected detected issues, some critical, during the course of the AQP test session.  
*As of: 12/31/2018
NEWS & TRENDS IN AQP TESTING

• AQP Test Procedures and Facilities for AoIP are nearing completion.
• For mature, AQP-approved suites, we are frequently able to Waive the AQP testing requirement for minor software updates. - Nineteen such Waivers in 2018 YTD.
• Most avionics suites submitted for AQP support POA, VDL Mode 2 AOA and ATN plus long range media (Aero-Satellite/Iridium/HF).
  - Complete AQP testing is averaging eight days.
NEWS & TRENDS IN AQP TESTING

• Due to the maturity of classic VHF based avionics, the number of AQP tests performed in 2018 has declined.
• AQP testing for prototype systems supporting new media did not fair well during AQP and yielded a disproportionate percentage of suites with a status of Failed.
• The development of Iridium Next/Certus Test Facilities is complete and the corresponding Test Procedures are well underway to support AQP for this media in the near future.
• Since September 2015, all VDLM2 capable avionics systems submitted for AQP must include functionality intended to comply with AEEC Standard 631-6 for Multi-Frequency operation.
AQP CLASSIFICATIONS

Pass: Avionics are fully compliant with AEEC standards and have unrestricted network use.

Waived: Avionics have minor deviations from AEEC standards that do not require additional RF resources. Unrestricted use.

Waived/Network-Impacting: Avionics have defects that will require additional RF resources. Unrestricted use; however, RF charges may apply in North America and Europe.

Failed: Avionics have serious problems that will impact the network and be disruptive to other airline messages. Restricted from use.

Not Tested: Avionics version has not been submitted for AQP testing. RF utilization charges will apply and possible termination of communications service.
<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stuck Message</strong></td>
<td>Data link system sends a message in an endless loop jamming up the radio channel regionally for all aircraft and users.</td>
</tr>
<tr>
<td><strong>Stuck Transmitter/Radio/Carrier</strong></td>
<td>Data link suite keys transceiver continually blocking communications for all other users on the media.</td>
</tr>
<tr>
<td><strong>Killer Message/Protocol</strong></td>
<td>Data link sends illegal or corrupted message that would cause ARINC data link service component(s) to stop operating (&quot;crash&quot;).</td>
</tr>
<tr>
<td><strong>Locking-Up Data Link Requiring Reboot</strong></td>
<td>Data link suite repeatedly enters unrecoverable fault mode (&quot;crashes&quot;) under normal use and ceases sending downlinks and responding to all uplinks. A circuit breaker reset is required to restore ATS and AOC service—generally not allowed in flight.</td>
</tr>
<tr>
<td><strong>Unstable Data Link System</strong></td>
<td>Data link suite is repeatedly unresponsive to human input or addressed uplink activity making it unsatisfactory from a customer viewpoint. Typically associated with &quot;Locking-Up&quot;.</td>
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QUESTIONS?

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