# AVIONICS QUALIFICATION POLICY
# 2023 MID-YEAR REPORT

Prepared for:  The Aviation Industry

**July 14, 2023**

# 2023 YTD: AQP TEST RESULTS SUMMARY

| Phase 3  Tests | Phase 3 Test Waivers | Phase 4 Tests |
|:---:|:---:|:---:|
| 7 | 5 | 0 |

| Tested Results Category*1 | Number of Tested Suites | Percent |
|---|:---:|:---:|
| Passed | 4 | 57% |
| Waived: Non-Network Impacting | 3 | 43% |
| Waived – Network Impacting | 0 | 0% |
| Failed | 0 | 0% |

**\*1:  Final AQP Status – In many cases the manufacturer corrected detected issues, some critical, during the course of the AQP test session.   All reported results as of July 4, 2023**

# NEWS & TRENDS IN AQP TESTING

- With the maturity of classic VHF-based avionics systems, the number of VHF AQP tests is gradually declining and being replaced with the AQP testing of avionics supporting new communications media including Iridium, Enhanced Swift Broadband-Safety, IPS, and ACARS over IP.

- Iridium Next/Certus Test Facilities and Test Procedures are complete and ready. AQP testing is scheduled for 3 QTR 2023.

- The enhanced Swift Broadband-Safety (SB-S Ver 2.0) AQP facility and test procedures were completed in June 2020 and we are actively conducting Phase 3 AQP tests.

- 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.

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# NEWS & TRENDS IN AQP TESTING

- Current AQP Policy:  Revision M:  January 25, 2022.  Revised to include many minor updates to current AQP practices but without major technical or program changes.

- For mature, AQP-approved suites, we are frequently able to Waive the AQP testing requirement for minor software updates.
  - Five such Waivers YTD in 2023.

- 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.

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# 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.

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# WHAT YIELDS A "FAILED" AQP STATUS?

| | |
|---|---|
| **Stuck Message** | Data link system sends a message in an endless loop jamming up the radio channel regionally for all aircraft and users. |
| **Stuck Transmitter/Radio/ Carrier** | Data link suite keys transceiver continually blocking communications for all other users on the media. |
| **Killer Message/Protocol** | Data link sends illegal or corrupted message that would cause ARINC data link service component(s) to stop operating ("crash"). |
| **Locking-Up Data Link Requiring Reboot** | Data link suite repeatedly enters unrecoverable fault mode ("crashes") 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. |
| **Unstable Data Link System** | Data link suite is repeatedly unresponsive to human input or addressed uplink activity making it unsatisfactory from a customer viewpoint. Typically associated with "Locking-Up". |

# QUESTIONS ?

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