

AVIONICS QUALIFICATION POLICY

2020 MID-YEAR REPORT

Prepared for:
The Aviation Industry

June 29, 2020



2020 AQP TEST RESULTS SUMMARY

Phase 3 Tests	Phase 3 Test Waivers* ¹	Phase 4 Tests
5	11	0

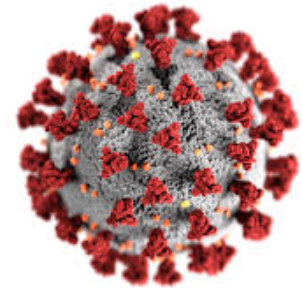
Tested Results Category* ²	Number of Tested Suites	Percent
Passed	2	40%
Waived: Non-Network Impacting	2	40%
Waived – Network Impacting	0	0%
Failed	1	20%

***1: One was an temporary waiver allowing OEM operational trials to continue over the COVID19 AQP shut down period.**

***2: 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 June 29, 2020**

AQP NEWS & TRENDS: COVID-19

- COVID-19 has greatly impacted our AQP test schedule
- Maryland state government had required the shut-down of all non-essential work.
- Most AQP testing has been on hold for the 2nd QTR 2020.
- Normal AQP testing is expected to resume in mid-July.
- Currently our scheduled AQP backlog is about 8 weeks.



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, and ACARS over IP.
- Iridium Next/Certus Test Facilities and Test Procedures are complete and ready to support AQP.
- The enhanced Swift Broadband-Safety (SB-S Ver 2.0) AQP facility and test procedures were completed in June 2020 and we are currently scheduling Phase 3 AQP.
- 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.



NEWS & TRENDS IN AQP TESTING

- Current AQP Policy: Revision K: May 1, 2017. Revised to add new media....ACARS-Over-IP (AoIP), Iridium Next/Certus and Swift Broadband Safety (SB-S) .
- For mature, AQP-approved suites, we are frequently able to Waive the AQP testing requirement for minor software updates.
 - Eleven such Waivers in 2020 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.



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.

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 ?

Contact:

Stephen Leger
Collins Aerospace
stephen.leger@rockwellcollins.com
(410) 266-2169