

Test report
Architect® readers
tested in extreme
environments



Models: ARC1, ARC-A, ARC-B



▶ **Architect® standard reader
ARC-A**

Operating temperatures	- 30°C to + 70°C / - 22°F to +158°F
Storage temperatures	- 30°C to + 70°C / - 22°F to +158°F
Water and dust resistance	IP65 Level - Weather-resistant with waterproof electronics (CEI NF EN 61086 homologation)
Moisture resistance	0 to 95%
Saline environments	Compliant with DO-160F, Section 14, Category T (most severe environment for aeronautical equipment) Temperature: 35°C / 95°F / Salinity: 5% / Flowrate: 1.2 liters per hour / Duration: 96 hours
Shock resistance	IK10 certified
Fire resistance	Yes self-extinguishing - complies with UL94-V0
UV resistance	Yes - Casing material resistant to solar radiation
Liquid resistance	Water, ammonia (13% solution), H2O2 (20-volume stabilized oxygenated water)



▶ **Architect® keypad reader
ARC-B**

Operating temperatures	- 30°C to + 70°C / - 22°F to +158°F
Storage temperatures	- 30°C to + 70°C / - 22°F to +158°F
Water and dust resistance	IP65 Level - Weather-resistant with waterproof electronics (CEI NF EN 61086 homologation)
Moisture resistance	0 to 95%
Saline environments	Compliant with DO-160F, Section 14, Category T (most severe environment for aeronautical equipment) Temperature: 35°C / 95°F / Salinity: 5% / Flowrate: 1.2 liters per hour / Duration: 96 hours
Shock resistance	IK08 certified
Fire resistance	Yes self-extinguishing - complies with UL94-V0
UV resistance	Yes - Casing material resistant to solar radiation



▶ **Architect® One million reader
ARC1 (A & B versions)**

Operating temperatures	- 30°C to + 70°C / - 22°F to +158°F
Storage temperatures	- 30°C to + 70°C / - 22°F to +158°F
Water and dust resistance	IP65 Level - Weather-resistant with waterproof electronics (CEI NF EN 61086 homologation)
Moisture resistance	0 to 95%
Shock resistance	IK10 certified
Fire resistance	Yes self-extinguishing - complies with UL94-V0
UV resistance	Yes - Casing material resistant to solar radiation
Liquid resistance	Water, ammonia (13% solution), H2O2 (20-volume stabilized oxygenated water)

▶ A. Saline environment tests

Description

Continuous corrosion testing in a salt fog saturated atmosphere.

Test parameters

Test parameters were defined on the basis of Document DO-160F, Section 14 "Environmental Conditions and Test Procedures for Airborne Equipment" pertaining to environmental salt fog testing for aeronautical equipment, as published by the RCTA:

- ▶ Category T - Most severe saline environment for aeronautical equipment.
- ▶ Temperature: 35°C / 95°F.
- ▶ Salinity: 5%.
- ▶ Flowrate: 1.2 liters per hour.
- ▶ Equipment: SSC-400 DYCOMETAL salt fog chamber.
- ▶ Test duration: 96 hours.

The readers were powered and operational throughout the 96 hours of testing. Reading and keypad tests were performed every 24 hours.



Results

At the end of the test, the readers remained operational, with LEDs in Rainbow mode, with data read and transmitted from the card, responsive to external commands and the UHF chip operational. A slight salt deposit was found on the reader, but did not disrupt its operation.

Architect® readers



No deposit or oxidation was found on the antenna or keypad ribbon cables.

▶ B. Temperature tests

Description

Extreme temperature resistance test in a temperature chamber (CLIMATS EX1421-HA).

Test parameters

The readers were tested at positive temperatures up to +70°C / +158°F and humidity of 95% for 48 hours, with a MIFARE® DESFire® EV1 card being read continuously. The readers were tested at negative temperatures down to -50°C / -122°F for 4 hours. Water sprays were used to have an ice formation on the cover.

Results

The readers remained operational with no damage to the outer casing.



▶ C. Water tests



Description

Water resistance test to demonstrate the reader's ability to remain operational under heavy rainfall.

Test parameters

Multiple tests were performed:

- ▶ High-flow continuous spray from above with a hose for more than 1 minute.
- ▶ Readers exposed for more than 2 years in outdoor environments.
- ▶ Readers exposed to an automatic spray system for several months (high-pressure spray on the reader – 7m³/h / 1849 gal/h – for up to 2 hours a day in summer). The test has been underway since July 2016 and the readers are still operational.

Results

Following exposure, humidity was observed inside the reader, but tropicalization means that the readers can remain operational.

▶ A. IK external impact tests

Description

Resistance test to determine the degree of protection against mechanical impacts provided by the outer casing of the readers.

Test parameters

The readers were tested according to IK ratings as per Article 6 of IEC 62262, 2002 edition, and NF EN 62262, 2004 edition, by LCIE (*Laboratoire Central des Industries Electriques*).

- ▶ Impact energy: 5 joules (IK08) / 20 joules (IK10).
- ▶ Number of impacts: 5 on the front.
- ▶ Mass: 1.7 kg (IK08) / 5 kg (IK10).
- ▶ Drop height: 30 cm (IK08) / 40 cm (IK10).

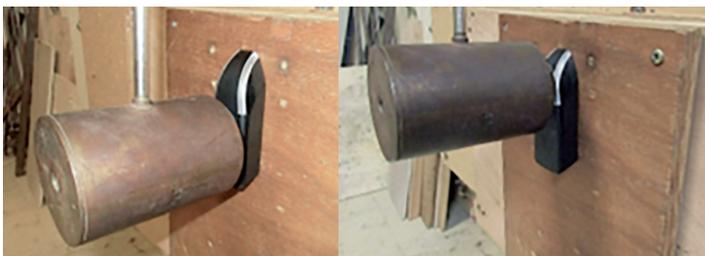
Results

No damage was observed such as to jeopardize protection of internal components and humans.



▶ IK10 test

Architect® ARC-A standard reader is rated IK10.
Test report no. 124505-650201.



▶ IK10 test

Architect® One ARC1 mullion reader is rated IK10.
Test report no. 141657-685423.



▶ IK08 test

Architect® ARC-B reader with keypad is rated IK08.
Test report no. 145623-697063.

▶ B. Fire tests



Description

Fire resistance test.

Test parameters

- ▶ Duration: 3 minutes.
- ▶ Reader was doused with petroleum before the fire was lit.



Results

The reader was still 100% operational.

The lower part of the outer casing (PC-ABS plastic) melted following prolonged exposure to a residual flame - but the inside of the casing and the circuit board remained intact.

▶ C. Tests with other liquids



Description

Reader cases submerged in ammonia and hydrogen peroxide (H2O2).

Paramètres du test

- ▶ Duration: 1 hour in each liquid.
- ▶ Liquid for test 1: H2O2 (hydrogen peroxide stabilized at 10%).
- ▶ Liquid for test 2: Ammonia (13% solution).
- ▶ Reader cases tested: ARC-A black and white, ARC1.



Results

No damage to the reader cases. The pad-printed STid logo and graphics remained intact.

▶ D. Other resistance tests

Various tests were performed to model vandalism with more standard tools. The readers successfully withstood these attacks, retaining full physical and functional integrity.

- ▶ Utility knife: the case was marked but not penetrated.
- ▶ Hammer: the case was marked but not penetrated or cracked.
- ▶ Adjustable spanner.
- ▶ Stamping / jumping.
- ▶ Running over by SUV.
- ▶ Cigarette lighter flame.



Watch one of our
resistance test one
the ARC-A reader





STid

Electronic Identification



Standing the test of time

Headquarters / EMEA

20 Parc d'Activités des Pradeaux
13850 Gréasque, France
Tel. +33 (0)4 42 12 60 60
info@stid.com

Paris-IDF Office

Immeuble le Trysalis
416 avenue de la division Leclerc
92290 Chatenay Malabry, France
Tel. +33 (0)1 43 50 11 43
info@stid.com

Australia / APAC Office

Levels 6, 616 Harris Street,
Ultimo, Sydney, NSW 2007,
New South Wales, Australia
Tel. +61 (0)2 92 74 88 53
info@stid.com



www.stid-security.com



Designed in France

UK London Office

London, Holborn,
88, Kingsway, London WC2B 6AA,
United Kingdom
Tel. +44 207 8 411 054
info@stid.com

UK North Office

Innovation centre, Gallows Hill
Warwick, CV34 6UW
United Kingdom
Tel. +44 (0) 1926 217 884
info@stid.com

LATINE America Office

Varsovia 57, Interior 501, Colonia Juárez
CP 06600, Delegación Cuauhtemoc
México D. F.
Tel. +52 (55) 52 56 47 06
info@stid.com