Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs,
Education and Research EAER

State Secretariat for Economic Affairs SECO
Swiss Accreditation Service SAS

STS Directory

Accreditation number: STS 0050

International standard:	ISO/IEC 17025:2017
Swiss standard:	SN EN ISO/IEC 17025:2018

RUAG AG
Test Competence Center
Allmendstrasse 86
3602 Thun (HS)

Site:
RUAG AG
Seetalstrasse 175
6032 Emmen (GS1)

Head:	Dr. Stefan Tresch
Responsible for MS:	Jean-Daniel Beer
Telephone:	+41 58 485 78 09
E-Mail:	testing@ruag.ch
Internet:	www.ruag.ch
Initial accreditation:	17.01.1994
Current accreditation:	05.02.2024 to 04.02.2029
Scope of accreditation:	www.sas.admin.ch (Accredited bodies)

Scope of accreditation as of 05.02.2024

Testing laboratory for simulated environmental testing and test of transport packages for the transport of dangerous goods (USIM), electromagnetic compatibility (EMC), mechanical, non destructive and metallographic testing of metals (ZfP/ZP)

Lab	Group of products or materials, field of activity	Principle of measurement [2] (characteristics, measuring ranges, type of test)	Test methods, remarks (national, international standards, in-house test methods)
HS		**Testing laboratory for Environmental Simulation (USIM)**	**Technical Manager USIM:** René Krummenacher Phone: +41 58 485 78 09 Email: usim@ruag.ch
HS		**Thermal- / climatic tests**	
	Electric, electronic and mechanical devices and units as well as objects containing explosives	Heat tests: Chambers: up to +180 °C Size: up to 4500 l	MIL STD 810, Meth 501, MIL STD 331, Test C6, AECTP 300, Meth 302, IEC 60068-2-2, EN 60068-2-2, V 009 100 “Richtlinie USP“, P-Nr. 101

1) Scope of accreditation type A (fix)
2) Scope of accreditation type B (flexible)
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Definition of flexibilty see SAS Document 741

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Lab	Group of products or materials, field of activity	Principle of measurement [2] (characteristics, measuring ranges, type of test)	Test methods, remarks (national, international standards, in-house test methods)
HS	Electric, electronic and mechanical devices and units as well as objects containing explosives	Cold tests: Chambers: down to -70 °C Size: up to 4500 l	MIL STD 810, Meth 502 und 521, MIL STD 331, Test C6, AECTP 300, Meth 303, IEC 60068-2-1, EN 60068-2-1, V 009 100 “Richtlinie USP“, P-Nr. 102
		Temperature-shock tests: Chambers: -65 °C to +200 °C Size: up to 1500 l	MIL STD 810, Meth 503, MIL STD 331, Test C7, AECTP 300, Meth 304, EN 60068-2-14, IEC 60068-2-14, V 009 100 “Richtlinie USP“, P-Nr. 103, RTCA DO-160, Section 5
		Climate test: Chambers: 10 % to 98 % RH at 10 °C to 95 °C Capacity: up to 4500 l	MIL STD 810, Meth 507 und 520, MIL STD 331, Test C1, AECTP 300, Meth 306, EN 60068-2-30, IEC 60068-2-30, EN 60068-2-38, IEC 60068-2-38, EN 60068-2-67, IEC 60068-2-67, EN 60068-2-78, IEC 60068-2-78, V 009 100 “Richtlinie USP“, P-Nr. 201, RCTA DO-160, Section 6
		Low-Pressure Test: Pressure: atmospheric pressure down to 50 mbar Capacity: 2800 l	MIL STD 810, Meth 500 und 520, AECTP 300, Meth 312, EN 60068-2-13, IEC 60068-2-13, EN 60068-2-39, IEC 60068-2-39, EN 60068-2-40, IEC 60068-2-40, EN 60068-2-41, IEC 60068-2-41, V 009 100 “Richtlinie USP“, P-Nr. 203, RTCA DO-160, Section 4
		Tests on compressive strength	
HS	Cases, cabinets	Alternating pressure +/-10 kPa Load Cycles, indirect and direct procedures	ATG LP 45 (Alp Transit Gotthard AG, Dok.: Nr. ATG:BE01-#10021 ID’s Nr.: LP 45.98 & LP 45.99)
HS		**Mechanical Tests**	
HS	Electric, electronic and mechanical devices and units as well as objects containing explosives	Vibration Tests: Shakers vertical and horizontal (Slip-tables) Thurst: 2.2 kN to 88.9 kN with possibility of simultaneous - tempering: -54 °C to +80 °C - humidity: 10 % to 98 % RH at 10 °C to 95 °C Performance: 5 - 3000 Hz	MIL STD 810, Meth 514, MIL STD 331, Test B1 - B3, AECTP 400, Meth 401 und 406, EN 60068-2-6, IEC 60068-2-6, EN 60068-2-64, IEC 60068-2-64, EN 61373, IEC 61373, V 009 100 “Richtlinie“, P-Nr. 301, RCTA DO-160, Section 8

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Lab	Group of products or materials, field of activity	Principle of measurement [2] (characteristics, measuring ranges, type of test)	Test methods, remarks (national, international standards, in-house test methods)
HS	Electric, electronic and mechanical devices and units as well as objects containing explosives	Mech. shock tests: on Shaker: Acceleration up to 75 g or on shock table: up to 250 g according to test object and fixture	MIL STD 810, Meth 516, MIL STD 331, Test A1, AECTP 400 Edition 1-3, Meth 403, AECTP 400 Edition D, Meth 403, EN 60068-2-27, IEC 60068-2-27, EN 60068-2-53, IEC 60068-2-53, EN 60068-2-55, IEC 6068-2-55, EN 60068-2-57, IEC 60068-2-57, EN 60068-2-59, IEC 60068-2-59, EN 60068-2-80, IEC 60068-2-80, EN 60068-2-81, IEC 60068-2-81, EN 61373, IEC 61373, V 009 100 “Richtlinie USP“, P-Nr. 302, RCTA DO-160, Section 7
		on Shock machine: - Mass of test item: up to 85 kg - Shape of shockwave: Half sine and rectangular - Acceleration: up to 7000 g	EN 60068-2-27, IEC 60068-2-27, V 009 100 “Richtlinie USP“, P-Nr. 302, RCTA DO-160, Section 7
HS		**Drop tests** Drop height: up to 17 m Drop bases: concrete, steel, wood, sand	MIL STD 810, Meth 516, MIL STD 331, Test A3 - A5, AECTP 400, Meth 414, EN 60068-2-31, IEC 60068-2-31, EN 60068-2-75, IEC 60068-2-75, V 009 100 “Richtlinie“, P-Nr. 303
HS		**Dust tests** Chamber: 2000 x 800 x 800 mm Mass of Test item: max. 100 kg	MIL STD 810, Meth 510, MIL STD 331, Test C9, AECTP 300, Meth 313, EN 60068-2-68 according to EN 60529 (with horizontal air flow), IEC 60068-2-68 according to IEC 60529 with horizontal air flow), EN 60529, IEC 60529, V 009 100 “Richtlinie“, P-Nr. 204
HS		**Corrosion tests** Salt-mist tests Chamber: up to 50 °C Capacity: ca. 2500 l	MIL STD 810, Meth 509, EN 60068-2-11, IEC 60068-2-11, EN 60068-2-52, IEC 60068-2-52, ISO 9227, AECTP 300, Meth 309, RCTA DO-160, Section 14

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Lab	Group of products or materials, field of activity	Principle of measurement [2] (characteristics, measuring ranges, type of test)	Test methods, remarks (national, international standards, in-house test methods)
HS	Electric, electronic and mechanical devices and units as well as objects containing explosives	**Water tightness tests** Rain test facility: - Test chamber: 17 m^3 - Wind: up to 18 m/sec - Rain volume: up to 300 mm/h Masses of test items: MIL STD 810: 400 kg EN 60529: 50 kg - Immersion basin: Temperature: up to +80 °C, 1550 x 1550 x 700 mm, 1550 x 700 x 550 mm, (h x b x t → h = immerse depth)	MIL STD 810, Meth 506, AECTP 300, Meth 307 und 310, EN 60068-2-17, Tab. II, IEC 60068-2-17, Tab. II, EN 60068-2-18, IEC 60068-2-18, EN 60529, IEC 60529, V 009 100 “Richtlinie USP“, P-Nr. 202, MIL STD 810, Meth 512, RCTA DO-160, Section 10
HS		**Model tests on packages for the transport of dangerous goods**	
HS	Packages for solid materials and items, except barrels made of natural wood	Drop tests Stockpile tests	Rules for the transport by railway and on the road (Transportreglement) RID/ADR, Teil 6, Kap. 6.1
HS		**Testing laboratory for electromagnetic compatibility (EMC)**	**Technical Manager EMC:** Andreas Horvath Phone: +41 58 482 13 72 Email: emv@ruag.ch
HS	Electrical devices and equipment	Emission Basic Standards:	
		Harmonic current emissions ≤ 16 A	EN 61000-3-2, IEC 61000-3-2
		Voltage changes, voltage fluctuations and flicker ≤ 16 A	EN 61000-3-3, IEC 61000-3-3
		Disturbance voltages and currents Frequency range: f = 9 kHz - 30 MHz	EN 55016-1-1, CISPR 16-1-1, EN 55016-1-2, CISPR 16-1-2, EN 55016-2-1, CISPR 16-2-1
		Disturbance field strength Frequency range: f = 30 - 1000 MHz Test distance R = 3 m Test distance R = 10 m	EN 55016-1-1, CISPR 16-1-1, EN 55016-1-4, CISPR 16-1-4, EN 55016-2-3, CISPR 16-2-3
		Disturbance field strength Frequency range: f = 1 GHz – 18 GHz	EN 55016-1-1, CISPR 16-1-1 EN 55016-1-4, CISPR 16-1-4 EN 55016-2-3, CISPR 16-2-3

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Lab	Group of products or materials, field of activity	Principle of measurement [2] (characteristics, measuring ranges, type of test)	Test methods, remarks (national, international standards, in-house test methods)
		Electrostatic discharge immunity	EN 61000-4-2, IEC 61000-4-2
HS	Electrical devices and equipment	High frequency electromagnetic field frequency range: f = 80 MHz – 6 GHz	EN 61000-4-3, IEC 61000-4-3
		Electrical fast transient / burst	EN 61000-4-4, IEC 61000-4-4
		Surge	EN 61000-4-5, IEC 61000-4-5
		Conducted disturbances, induced by radio-frequency fields frequency range: f = 0.15 - 220 MHz	EN 61000-4-6, IEC 61000-4-6
		Power frequency magnetic field	EN 61000-4-8, IEC 61000-4-8
		Impulse magnetic field	EN 61000-4-9, IEC 61000-4-9
		Voltage dips, short interruptions and voltage variations	EN 61000-4-11, IEC 61000-4-11
		Ring wave	EN 61000-4-12, IEC 61000-4-12
		EMC of products	
		Generic standards	EN 61000-6-1, IEC 61000-6-1, EN 61000-6-2, IEC 61000-6-2, EN 61000-6-3, IEC 61000-6-3, EN 61000-6-4, IEC 61000-6-4,
		Product standards:	EMC-tests according to product standards that are fully covered by the above listed basic standards Among others:
HS	Industrial, scientific and medical (ISM) radio-frequency equipment	Emission	EN 55011 [P], CISPR 11 [P]
HS	household appliances, electric tools and similar apparatus	Emission Immunity	EN 55014-1, CISPR 14-1 EN 55014-2, CISPR 14-2
HS	Medical electrical equipment	General requirements for basic safety and essential performance	IEC/EN 60601-1-2
			Additional product standards
	Information technology equipment	Emission	EN 55022, CISPR 22
		Immunity	EN 55024, CISPR 24

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HS	Multimedia equipment	Emission	EN 55032, CISPR 32
		Immunity	EN 55035, CISPR 35 XXX)
HS	Rolling stock - Apparatus	Emission and Immunity	EN 50121-3-2
HS	Various products	Military Standards	MIL-STD-461D-G, MIL-STD-462D Test method CS115, CS116, CS118
			AECTP 500E Test method NCS08, NCS09
HS		**Technical Department** **Material testing** **Non destructive testing** **Destructive testing**	**Technical Manager:** Markus Zgraggen Telefon: +41 (0) 58 481 73 65 E-Mail: wp@ruag.ch
		Non destructive testing and measuring procedure	(Certification of personnel in accordance to EN ISO 9712)
HS	Metals	**VT – Visual Testing** - Direct visual inspection with or without aids	General: EN 13018 Casting parts. EN 1370 Welding Products: EN ISO 17637
		UT Ultrasonic Testing - Impuls echo method	General: EN ISO 16810 / EN ISO 16811
	Metals	- Transmission technology	EN ISO 16823 Casting parts: EN 12680 -1 / -2 / -3 Forging parts: EN 10228 -3 / -4 Welding Products: EN ISO 17640, EN ISO 22825, EN ISO 11666, EN ISO 23279 Rolled Products: EN 10307, EN 10308, EN 10160
HS	Metals, polymers	**PT – Penetrant Testing** - Fluorescent penetrant - Dye penetrant	General: EN ISO 3452 – 1 Casting parts: EN 1371 – 1 / 2 Forging parts: EN 10228 -2 Welding Products: EN ISO 23277
HS	Ferromagnetic materials	**MT – Magnetic Testing** - Stationary systems - Magnetic yoke - Mobile systems	General: EN ISO 9934-1 Casting parts: EN 1369 Forging parts: EN 10228 Welding Products: EN ISO 17638, EN ISO 23278
HS	Metals	Non-conductive coatings on non-magnetic electrically conductive base metals - Measurement of coating thickness - Amplitude-sensitive eddy-current method	EN ISO 2360

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HS		Magnetic methods of measurement of thickness of non ferromagnetic coatings on ferromagnetic materials	EN ISO 2178
		Chemical Composition of Metals	
HS	Iron, aluminum, titanium, copper and nickel base alloys	Mobile spectrometry by spark excitation: (Fe base: C max. 2,5 %) - Identifications analyses	AAV C1
HS	Fe-Base, construction Steels and stainless Steels	Handheld Laser induced breakdown spectroscopy (LIBS) - Identifications analyses	Internal method FWI-202300046
HS	Iron, aluminum, titanium, copper and nickel base alloys, Heavy Metals in organic coatings	Handheld XRF-Analytics (PMI)	Internal method FWI-202300033
HS		**Mechanical Materials Testing**	
HS	Metals	Measure of the tensile strenght up to 250 kN load measure of elongation until breaking: - Tensile test of standard specimen, bars and wires at room temperature - Test of components	EN ISO 6892-1
	Metals	Measure of the compression strength up to 250 kN load: - Compression test of cylindrical specimen - Test of components	DIN 50106
		Bending strength test up to max. 250 kN Load - Technological bending test using a three-point support or punch and die	EN ISO 7438
		Component Testing	
GS1		- Fatigue Testing with variable amplitude	ISO 12110-01 Metallic materials - Fatigue testing - Variable amplitude fatigue testing

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HS		Measure of absorbed energy up to 300 J: - Charpy impact test from -60°C to +250°C	EN ISO 148-1
HS		Mobile Härteprüfung HV(UCI) 10N,50N,100N	DIN 50159-1 DIN 50159-2
		Hardness testing: Vickers: 0,25 - 1177 N charge, portable test 196 N: Vickers hardness test (stationary and portable) and micro hardness test	EN ISO 6507-1
		Brinell: 9,8 - 29420 N charge: - Brinell hardness test	EN ISO 6506-1
		Rockwell: scale A, C, 15 N, 30 N und 45 N: - Rockwell hardness test	EN ISO 6508-1
HS		**Optical Metallography**	
HS	Metals	Magnification from 50 to 1000 times: mircostructural qualification with picture documentation	DIN 50600
		Measure of thickness of layers	EN ISO 1463
		Determination of ferritic or austenitic grain size of steels and ferrous materials	EN ISO 643
HS	Metals	Microscopic examination of special steels using standard diagrams to access the content of non-metallic inclusions	DIN 50602, DIN EN 10247
		Hardness depth of heat-treated parts; determination of the effective depth of carburized and hardened cases, of hardening by flame or induction hardening and of hardening by nitriding	EN ISO 2639, DIN EN 10328, DIN 50190-3, DIN 50190-4
HS		Determination of depth of decarburization by optical microscopy and low charge hardness test	EN ISO 3887

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HS		**Surface Tests** Metallic coatings, Vickers and Knoop microhardness tests	 EN ISO 4516

Restrictions:

P) Without magnetic fields of induction cooking appliances of group 2

XXX) Excluding test for immunity to broadband pulsed conducted disturbances.

In case of contradictions in the language versions of the directories, the German version shall apply.

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