Schedule of Accreditation

Issued by

United Kingdom Accreditation Service

2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

UKAS TESTING **20085** **Accredited to ISO/IEC 17025:2017**	**QinetiQ Ltd** **Issue No:** 004 **Issue date:** 01 August 2026	
	MOD Pendine **Llanmiloe** **Carmarthen** **SA33 4UA**	**Contact: Andrew Leahy** **Tel: +44 (0) 1994 452289** **E-Mail: ajleahy@qinetiq.com**
Testing performed at the above address only		

DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
MORTARS UP TO 120MM SMALL ARMS UP TO 12.7MM CANNON AND SMOOTH BORE UP TO 40MM RECOIL-LESS WEAPONS PYROTECHNICS AMMUNITION FOR ABOVE FREE FLIGHT ROCKETS GUIDED WEAPONS WARHEADS	**EXTERNAL BALLISTICS** ACCURACY Surveyed Lines (GPS) – 1 m to 7000 m Length and distance - 1mm to 50m VERTICAL PLANE Angular measurement - Quadrants (± 1 mil)	DEF STAN 07-085 Part 4 Issue 2 DGM ISS Plans (various depending on calibre and nature), NATO Multi calibre MOPI-AEP -97 Edition A V1 2020 NATO STANAGs/AOPs, NATO AEPs and In-House Procedures based on above specifications using the equipment listed
	VELOCITIES Photoelectric Counter Chronometer (PCC) – up to 30 m base Dopler Radar (DR) – 50 ms^{-1} to 2000 ms^{-1} Velocity Analysing Systems (VAS)- 1 μs to 100μs (Resolution) High Speed Digital Video (HSDV): - Frame rates from 1000 fps to 150000 fps with an exposure of 300 nanoseconds Tapes – 300 mm to 30 m	

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
As listed on page 1	**EXTERNAL BALLISTICS** (cont'd) PROJECTILE STABILITY Pitch and Yaw (High Speed Video) - (±1°) -25 and 240 pps for 30 mins Yaw Cards - 1 mm to 200 mm	
	PENETRATION Up to 3m depth Measurement by calibrated instruments (e.g. rules, length bars, depth micrometres and Vernier callipers), manual measurements (e.g. rules and probes)	
	Video Duration Up to 180 mins @ 25 fps UP to 30 mins @ 240 fps	
	BLAST OVERPRESSURES Piezo-Electric Pressure transducers up to 2 MPa other sensor types to 3.5 MPa	

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
As listed on page 1	**INTERNAL BALLISTICS** PRESSURE Transducers-up to 750 MPa Copper crushers-up to 200 MPa	DEF STAN 07-085 Part 4 Issue 2 DEF STAN 05-101 Part 1 Issue 1 DEF STAN 05-101 Part 2 Issue 1 DGM ISS Plans (various depending on calibre and nature), NATO Multi Calibre MOPI –AEP-97 Edition A V 1 2020 NATO STANAGs/AOPs, NATO AEPs and In-House Procedures based on above specifications using the equipment listed
	TEMPERATURE MEASUREMENTS -60 ºC to +1200 ºC Thermocouples and Data Loggers	
	FUNCTIONING Component wear Bores up to 120 mm	
	ENVIRONMENTAL CONDITIONING -60 ˚C to + 75 ˚C Humidity 15% to 95%rh With logging facilities.	
	PREMATURES HSDV - (Acc. ± 1 Frame)	

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
As listed on page 1	**INTERNAL BALLISTICS** (cont'd) RATE OF FIRE ROF Recorders - Up to 10 000 rounds/min. HSDV: - (Acc. ± 1 Frame) @ 300 ns exposure	
	RECOIL/VIBRATION Accel - 0 to 250 g (linear) Load Cells - 0 to 160 kN HSDV: - (Acc. ± 1 Frame) @ 300 ns exposure LVDT - 2.5 mm to 12 mm	
	FLASH HSDV: - (Acc. ± 1 Frame) @ 300 ns exposure Standard video - 25 and 240fps	
	WEAPON STABILITY ON FIRING HSDV: - (Acc. ± 1 Frame) @ 300 ns exposure Standard video - 25 and 240 fps	
	BLAST PRESSURE Piezoelectric Transducers -up to 100 MPa	
	PRESSURE & THRUST Pressure transducers - Piezo-up to 2 MPa Load cells - up to 200 kN	

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
As listed on page 1	**INTERNAL BALLISTICS** (cont'd) PROOF Proof of propellant samples Transducers-up to 750 MPa Copper crushers-up to 200 MPa Scales - 0.001 g to 32 kg	
	BULLET ATTACK Colour CCTV - 25 and 250 fps HSDV: - (Acc. ± 1 Frame) VAS-1 μs to 100 μs (Resolution) Transducers up to 750 MPa PCC – up to 30 m base	
TARGETS AMMUNITION PROPELLANTS EXPLOSIVE STORES PACKAGING FUEL TANKS ROCKET MOTORS FUZES AND SAFUS DECOY SYSTEMS	**PERFORMANCE** PENETRATION AND EMPLACEMENT OF FRAGMENTS VELOCITY RETARDATION Flash X Ray - 0 to 450 kV VAS - 1 μs to 100 μs (Resolution) HSDV - (Acc. ± 1 Frame) Linear - Up to 5000 mm Measuring Jigs Strawboard packs RHA Plate	DEF STAN 07-085 Part 4 Issue 2 DEF STAN 05-101 Part 1 Issue 1 DEF STAN 05-101 Part 2 Issue 1 DGM ISS Plans (various depending on calibre and nature) NATO Multi Calibre MOPI –AEP-97 Edition A V1 2020 NATO STANAGs/AOPs, NATO AEP's and In-House Procedures using the equipment listed

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
UK IN SERVICE MUNITIONS	**CREDIBLE ACCIDENT** - Any incident or accident that could reasonably take place during the transport and storage of UK in service munitions	
	FUEL FIRE Temperature vs time – K type thermocouple to 1200 ºC 25 m/s per DAQ channel Blast - Piezo to 200 Kpa HSDV with audio capability Store response diary – Genesis from 15 ns res	STANAG 4240 PPS (EDITION 2) – LIQUID FUEL / EXTERNAL FIRE, MUNITION TEST PROCEDURES
	SLOW COOK OFF Temperature vs time – K type thermocouple to 1200 ºC Blast – Piezoelectric transducers to 2 MPa HSDV with audio capability Store response diary – Genesis from 15 ns res	STANAG 4382 PPS (EDITION 2) – SLOW HEATING, MUNITIONS TEST PROCEDURES
	BULLET ATTACK Bullet impact velocity – 1Mega/s/sec = 1μs res Genesis from 15ns res HSDV with audio capability Store response (blast pressure) – Piezoelectric transducers to 200 KPa Fragmentation or debris plot (GPS)	STANAG 4241 (EDITION 2) BULLET IMPACT, MUNITION TEST PROCEDURES

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
UK IN SERVICE MUNITIONS (cont'd)	**CREDIBLE ACCIDENT** (cont'd) FRAGMENT ATTACK Bullet impact velocity – 1Mega/s/sec = 1μs res Genesis from 15ns res Store response (blast pressure) – Piezoelectric transducers to 200 KPa Fragmentation or debris plot (GPS)	STANAG 4496 (EDITION 1) FRAGMENT IMPACT, MUNITION TEST PROCEDURES
	SYMPATHETIC REACTION Genesis from 15ns res HSDV / CCTV with audio capability Store response (blast pressure) – Piezoelectric transducers to 200 KPa Fragmentation or debris plot (GPS)	STANAG 4396 PPS (EDITION 2) – SYMPATHETIC REACTION, MUNITION TEST PROCEDURES
EXPLOSIVE WARHEADS. INCLUDING MORTARS, ROCKET WARHEADS, FREE FALL BOMBS, GUIDED MISSILE WARHEADS. GRENADES	**ARENA TRIALS** - in order to establish ballistic characterisation of the warhead Fragmentation patterns (Theta zones) Fragment recovery to establish mass and material – 0.001g - 20 kg Fragmentation velocity – VAS 1μs - 100 μs res Penetration criteria including Strawboard Packs Rule and tapes Thermal output K-Type (our standard) between -200°C and 1260°C	ITOP 4-2-813:1993 In- House Procedures based on above specification using the equipment listed

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SHIPS STEELS	PENETRATION RESISTANCE TO SMALL ARMS WEAPONS Plate specification and thickness – digital callipers ± 0.03 mm Plate temperature - 450 ºC magnetic Thermocouple @ 0.1 ºC res and DAQ Impact velocity of rounds (PCC) - 1 μs res	NATO AEP-88 Edition A Version 1 In-House Procedures based on above specifications using the equipment listed
SHIPS STRUCTURES	BLAST RESISTANCE OF SHIPS HATCHES. STRUCTURAL INTEGRITY OF GRP/STEEL PLATE BONDING; WHEN SUBJECTED TO BLAST LOADINGS. Visual repose of items under test using HSDV / CCTV Blast pressure - piezo electric to 600 MPa Piezo resistive to 1300 KPa Strain rates within the hatches, bonding surfaces – 1% of gauge Sensitivity	DES NAG-VR2 In-House Procedures and customer specifications based on the above authority
END		