

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

 0174 Accredited to ISO/IEC 17025:2005	Bruel and Kjaer	
	Issue No: 019 Issue date: 28 January 2010	
Jarman Way Royston Hertfordshire SG8 5BQ	Contact: Mr M G B White Tel: +44(0)1763 255771 Fax: E-Mail: ukservice@bksv.com Website: www.bksv.co.uk	
Calibration performed by the Organisations at the locations specified below		

Locations covered by the organisation and their relevant activities

Laboratory locations:

Location details	Activity	Location code
Address Jarman Way Royston Hertfordshire SG8 5BQ	Local contact Mr M G B White	
Address Bruel & Kjaer Sound & Vibration A/S Skodsborgvej 307 DK-2850 Naerum Denmark	Local contact Mr Henning Ploug Tel: +45 77 41 24 49 Fax: +45 77 41 20 27 Email: hploug@bksv.com	Acoustics Accelerometry Electrical DK

Note both laboratories operate at a nominal ambient of 23°C



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DETAIL OF ACCREDITATION

Measured Quantity Instrument or Gauge	Range	Best Measurement Capability Expressed as an Expanded Uncertainty ($k=2$)	Remarks	Location Code
ACOUSTICS				
SOUND PRESSURE LEVEL OF PISTONPHONES			NOTE: Calibrations of pistonphones and sound calibrators are restricted to ½ inch and 1 inch configurations with B & K microphones type 4160 and 4180.	DK
B & K type 4220/4228	250 Hz	0.1 dB		
SOUND PRESSURE LEVEL OF SOUND CALIBRATORS				
B & K type 4230	1000 Hz	0.15 dB		
B & K type 4231	1000 Hz	0.15 dB		
20 dB level step		0.04 dB	20 dB level step is a relative measurement	DK
ADDITIONAL TESTS ON B & K TYPE 4226 SOUND CALIBRATORS				
Inverted A weighting				
Difference between SPL free field and random			In accordance with the manufacturers handbook dated December 1990	DK
Difference in level setting				
Verification of Sound Level Meters to BS 7580:Part 1:1997			Sound Level Meters B & K Types, 2236, 2237, 2238, 2239, 2250, 2260 supplied with appropriate sound calibrator	DK
ELECTRICAL				
DC RESISTANCE				
Measurement	1 Ω to 1MΩ 1MΩ to 1GΩ 1GΩ to 1TΩ	0.01% 0.5% 10%		DK



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ELECTRICAL (cont'd)				
DC VOLTAGE				
Measurement	Up to 10 mV 10 mV to 1000 V	1% + 2 μ V 0.005% + 2 μ V		DK
AC VOLTAGE				
Measurement	1 mV to 12 mV 10 Hz to 40 Hz 40 Hz to 1 kHz 1 kHz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz 100 kHz to 300 kHz	0.0315 % +4.9 μ V 0.0210 % +3.9 μ V 0.0315 % +3.9 μ V 0.1050 % +2.9 μ V 0.5250 % +2.9 μ V 4.2 % +3.4 μ V		DK
Measurement (cont'd)	3 mV to 100 mV 1 Hz to 45 Hz	9%		
	10 mV to 120 mV 10 Hz to 40 Hz 40 Hz to 1 kHz 1 kHz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz 100 kHz to 300 kHz	0.0074 % +21.6 μ V 0.0074 % +21.3 μ V 0.0147 % +21.3 μ V 0.0315 % +10.9 μ V 0.0840 % +10.9 μ V 0.3150 % +15.0 μ V		
	100 mV to 1.2 V 10 Hz to 40 Hz 40 Hz to 1 kHz 1 kHz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz 100 kHz to 300 kHz	0.0074 % +99.0 μ V 0.0074 % +48.0 μ V 0.0147 % +48.0 μ V 0.0315 % +48.0 μ V 0.0840 % +48.0 μ V 0.3150 % +115 μ V		
	1 V to 12 V 10 Hz to 40 Hz 40 Hz to 1 kHz 1 kHz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz 100 kHz to 300 kHz	0.0074 % +990 μ V 0.0074 % +580 μ V 0.0147 % +580 μ V 0.0315 % +480 μ V 0.0840 % +480 μ V 0.3150 % +1150 μ V		
	0.1 V to 100 V 1 Hz to 45 Hz	1.59 %		
	10 V to 120 V 10 Hz to 40 Hz 40 Hz to 1 kHz 1 kHz to 20 kHz 20 kHz to 50 kHz 50 kHz to 100 kHz	0.0210 % +9.90 mV 0.0210 % +9.20 mV 0.0210 % +9.20 mV 0.0368 % +4.80 mV 0.1260 % +4.80 mV		



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ELECTRICAL (cont'd) AC VOLTAGE (cont'd) Generation	0.1 V to 100 V 1 Hz to 45 Hz	1.59 % +1 μ V		DK
	0.2 mV to 200 mV 10 Hz to 31 Hz	(0.030 - 0.017) % +5 μ V		
	32 Hz to 100 kHz	(0.039 - 0.024) % +5 μ V		
	10 kHz to 20 kHz	(0.051 - 0.044) % +5 μ V		
	0.2 V to 200 V 10 Hz to 31 Hz 32 Hz to 100 kHz 10 kHz to 20 kHz	(0.035 - 0.020) % (0.026 - 0.011) % (0.037 - 0.023) %		
FREQUENCY	0.1 Hz to 1 MHz	1.5 ppm		DK
ACCELEROMETRY ACCELERATION TRANSDUCERS Working or non-precision grades Piezoelectric type				
	High frequency test Nominal peak acceleration 1 up to 20 g_n (9.81 up to 196 m/s^2) Charge sensitivity > 0.1 pCg_n (0.01 pC/ms^{-2}) 20 Hz to 5 kHz > 5 kHz to 8 kHz > 8 kHz to 10 kHz	1% 1.5% 2%	Calibration of charge sensitivity by comparison with a reference (precision grade) transducer	DK



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ACCELEROMETRY (cont'd) ACCELERATION TRANSDUCERS (cont'd) Working or non-precision grades Piezoelectric type (cont'd)	Low frequency test: Nominal peak acceleration 0.2 g_n up to 20 g_n (1.96 up to 196 m/s^2) Charge sensitivity > 2.0 pC/ g_n (0.2 pC/ m/s^2) 1 Hz 2 Hz to 20 Hz	2% 1%	Calibration of charge sensitivity by comparison with a reference (precision grade) transducer	DK
Piezoresistive or strain-gauge type	High frequency test: Nominal peak acceleration 1 g_n up to 20 g_n (9.81 to 196 m/s^2) System sensitivity > 0.05 mV/ g_n (0.005 mV/ m/s^2) 20 Hz to 5 kHz > 5 kHz to 8 kHz > 8 kHz to 10 kHz	1% 1.5% 2%		DK
Integral electronics type	Low Frequency Test Nominal peak acceleration 0.2 g_n up to 2.0 g_n (1.96 to 19.6 ms^{-2}) System Sensitivity > 1 mV/ g_n (0.1 mV/ m/s^2) 1 Hz 2 Hz to 20 Hz	2% 1%		DK
	High frequency test Nominal peak acceleration 1 g_n up to 20 g_n (9.81 up to 196 m/s^2) System sensitivity > 1 mV/ g_n (0.1 mV/ m/s^2) 20 Hz to 5 kHz > 5 kHz to 8 kHz > 8 kHz to 10 kHz	1% 1.5% 2.0%		DK



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ACCELEROMETRY (cont'd) ACCELERATION TRANSDUCERS (cont'd) Integral electronics type (cont'd)	Low frequency test Nominal peak acceleration 0.2 g_n up to 2.0 g_n (1.96 up to 19.6 m/s^2) System sensitivity > 1 mV/ g_n (0.1 mV/ m/s^2) 1 Hz 2 Hz to 20 Hz	2% 1%		DK
PORTABLE ACCELEROMETER CALIBRATORS Distortion	Acceleration range 1 g_n to 20 g_n (0.1 m/s^2 to 2 m/s^2) 20 Hz to 10 kHz 80 Hz to 2 kHz (Signal level 50 mV to 10 V) 0.5% to 33%	1% 0.50% of reading	Calibration of acceleration level using a reference (precision grade) transducer	DK DK
END				