



CERTIFICATE OF ACCREDITATION

This is to attest that

YSF CORPORATION LTD

5A, BLOCK 1, KIN HO INDUSTRIAL BUILDING
20-24 AU PUI WAN STREET, FO TAN
SHATIN, HONG KONG

Calibration Laboratory CL-209

has met the requirements of AC204, *IAS Accreditation Criteria for Calibration Laboratories*, and has demonstrated compliance with the ISO/IEC Standard 17025:2017, *General requirements for the competence of testing and calibration laboratories*. This organization is accredited to provide the services specified in the scope of accreditation maintained on the IAS website (www.iasonline.org).

This certificate is valid up to January 1, 2021.

(See laboratory's scope of accreditation for fields of calibration and accredited calibration.)



This accreditation certificate supersedes any IAS accreditation bearing an earlier effective date. The certificate becomes invalid upon suspension, cancellation or revocation of accreditation. See www.iasonline.org for current accreditation information, or contact IAS at 562-364-8201.



A handwritten signature in black ink, reading "Raj Nathan", positioned above a horizontal line.

Raj Nathan
President



SCOPE OF ACCREDITATION

IAS Accreditation Number	CL-209
Accredited Entity	YSF Corporation Ltd
Address	5A, Block 1, Kin Ho Industrial Building, 20-24 Au Pui Wan Street, Fo Tan, Shatin, Hong Kong
Contact Name	Mr So Chi Kuen, Technical Engineer
Telephone	+852 8109 8368
Effective Date of Scope	April 14, 2020
Accreditation Standard	ISO/IEC 17025:2017

CALIBRATION AND MEASUREMENT CAPABILITY (CMC)^{1,2}

CALIBRATION AREA	RANGE	EXPANDED UNCERTAINTY ³ (±)	TECHNIQUE, REFERENCE STANDARD, EQUIPMENT
<i>Dimensional</i>			
Angle meter (protractor, tiltmeter, inclinometer)	0.11° to 90°	0.1°	Master angle meter
	0.04° to 45°	0.03°	Sine bar or sine plate and master gage blocks
Caliper	1 mm to 300 mm	0.02 mm	Master gage blocks
Coating thickness gage	0.05 mm to 2 mm	3 µm	Master plastic foil
Concrete cube mould (100 mm and 150 mm)	Dimension	0.02 mm	CS1: 2010 Vol 1 App. A25
	Flatness	0.01 mm	
	Squareness	0.02 mm	
	Parallelism	0.05 mm	
Concrete cylindrical mould (150mm diameter)	Dimension	0.02 mm	CS1: 2010 Vol 1 App. A27
	Flatness	0.01 mm	
	Straightness	0.01 mm	
	Squareness	0.02 mm	
Cover meter	Up to 200 mm	1 mm	BS1881 Pt204: 1988 Cl.6.4 (Method C)
		0.02 mm	
Depth gage	1 mm to 300 mm	0.02 mm	Master gage blocks
Dial gage	1 mm to 50 mm	4 µm	BS907:2008 Cl.9 and Annex B/ Micrometer head
	50 mm to 100 mm	6 µm	
Digimatic indicator / LVDT	1 mm to 10 mm	0.4 µm	Master gage blocks
	10 mm to 100 mm	3 µm	
External micrometer	0.01 mm to 25 mm	1.6 µm	Master gage blocks
	25 mm to 100 mm	3 µm	
Extensometer	25 mm to 200 mm gage length	0.9 µm	BS3846: 1970 Grade D and BSEN ISO 9513:2012 Class 1
Feeler gage	0.01 mm to 2 mm	2 µm	External micrometer
Height gage	1 mm to 500 mm	0.03 mm	Master gage blocks
Measuring ruler	1 mm to 1 m	0.6 mm	Master steel ruler



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Measuring tape Without sensor head With sensor head	1 mm to 200 m 1 mm to 200 m	0.8 mm per 5 m 1 mm per 5 m	Master measuring tape
Micrometer head	0.1 mm to 5 mm 5 mm to 50mm	1 µm 2 µm	Master gage blocks
Plastic foil	50 µm to 2 mm	2 µm	External micrometer
Spirit level	20 mm to 1.5 m long	0.015 mm per m	Electronic level
Square	50 mm to 300 mm	10 µm	Square & feeler gage
Straight edge	50 mm to 1 m	10 µm	Surface plate & feeler gage
Survey equipment: Theodolite	Horizontal angle: 0° to 360° Vertical angle: -75° to 75°	10" 10"	Master total station Master total station
Total station	Horizontal angle: 0° to 360° Vertical angle: -75° to 75° Distance: 1 m to 300 m	10" 10" 5 mm	Master autolevel
Autolevel	Level precision: 40 m apart	2 mm	Master GNSS
GNSS	Distance: up to 1 km apart	15 mm	
Thickness gage	1 mm to 50 mm	2 µm	Master gage blocks
Welding gage	Length measurement: up to 100 mm Angle measurement: up to 180°	0.1mm 1°	Master caliper, master gage block, master angle meter
Mechanical			
Anemometer	0.5 m/s to 1 m/s 1 m/s to 20 m/s	8 % 4 %	Master anemometer & various wind tunnels at different wind speed
Balance	0.05 g to 5 g 5 g to 250 g 250 g to 10 kg 10 kg to 200 kg	0.005 mg 0.04 mg 8 mg 0.01 kg	OIML Class E1 mass OIML Class E2 mass OIML Class F1 mass OIML Class M mass
Charpy V-notch impact tester	Up to 40 J Above 40 J to 230 J	1.6 J 10 J	BS EN ISO 148-2:2016 BS EN 10045-2: 1993
Compression machine (Force)	1kN to 3000 kN (class 1)	1 %	BS 1610: Part 1: 85 & 92/ BS EN 12390-4: 2000/ CS1: 1990 & 2010
Compression machine (Stability)	At 200 kN & 2000 kN	0.05 strain ratio	BS 1881: Part 115: 86 & BS EN 12390-4: 2000/ CS1: 1990 & 2010
Hardness testing machine	100-800 HV5 100-800 HV10 100-800 HV30	2 %	BS EN ISO 6507-2: 2018
Hydraulic cylinder	1 kN to 3000 kN	1 %	Master load cells
Load cell	1 kN to 3000 kN	1 %	Master load cells



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Flowmeter (air)	5 L/min to 200 L/min	1 %	Master air flowmeters
Flowmeter (water)	0.5 m ³ /h to 6 m ³ /h	1 %	Master water flowmeter
Pressure measuring device	5 Pa to 250 Pa 250 Pa to 2500 Pa 0.3 psi to 30 psi 14 psi to 3000 psi 140 psi to 10000 psi	5 Pa 15 Pa 0.5 % 0.5 % 0.5 %	Master pressure gauges
Rebound hammer	At 80 rebound count	1 rebound count	BS EN 12504-2: 2012 Cl. 4.2
Rebound hammer's anvil	Mass: 16 kg Hardness: 52 HRC	2 g 5 %	BS EN 12504-2: 2012 Cl. 4.2
Timer	Up to 10 min Up to 2 h	0.1 s 0.2 s	Master timer
Torque wrench	0.1 N·m to 1000 N·m	2 %	Master torque meters
UTM in compression mode (Force)	1 kN to 3000 kN (class 1)	1 %	BS EN ISO 7500-1: 2018
Vacuum gauge	0.1 bar to -1 bar	0.5 %	Master vacuum gage
Vibration meter	0.2 ms ⁻² to 20 ms ⁻²	3 %	Master accelerometer & shaker
Water meter	100 L to 500 L	2 %	Master water flowmeter
Thermal			
Curing tank (Temperature distribution & water circulation)	27 °C +/- 3 °C	0.4 °C	CS 1: 2010 Vol 1 App. A28
Humidity meter	11 %RH to 95 %RH (at 25 °C)	3 %RH	Master humidity meter in environmental chamber
Infrared thermometer	-10 °C to 100 °C 100 °C to 250 °C	2 °C 4 °C	Blackbody temperature source & Master infrared thermometer
Temperature – Measure	-190 °C to 420 °C	0.01 °C	SPRT
Thermometer	-20 °C to 80 °C 80 °C to 250 °C 250 °C to 600 °C 600 °C to 1100 °C	0.1 °C 0.2 °C 1.5 °C 3 °C	Liquid baths, dry block calibrators, SPRT & platinum thermocouple

¹The uncertainty covered by the Calibration and Measurement Capability (CMC) is expressed as the expanded uncertainty having a specific coverage probability of approximately 95 %. It is the smallest measurement uncertainty that a laboratory can achieve within its scope of accreditation when performing more or less routine calibrations of nearly ideal measurement standards or nearly ideal measuring equipment. The actual measurement uncertainty of a specific calibration performed by the laboratory may be greater than that provided in the CMC due to the behavior of the customer's device and to influences from the circumstances of the specific calibration.



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²If information in this CMC is presented in non-SI units, the conversion factors stated in NIST Special Publication 811 "Guide for the Use of the International System of Units (SI)" apply.

³When uncertainty is stated in relative terms (such as percent, a multiplier expressed as a decimal fraction or in scientific notation), it is in relation to instrument reading or instrument output, as appropriate, unless otherwise indicated.