FEDERATION FOR DEVELOPMENT OF ACCREDITATION SERVICES

118-119, First Floor, Sushant Tower, Sector – 56, Gurugram – 122011, Haryana, India.

CERTIFICATE OF ACCREDITATION

(AS PER ISO/IEC 17025:2017)

This is to attest that

AKSHAR CALIBRATION SERVICES.

Plot No 18,19, Survey No – 118, Byraveshwara Nagar,
Manganahalli Cross, Ullal Main Road, Ullal(P),
Bengaluru- 560110 (Karnataka), India

Calibration Laboratory

has demonstrated compliance with ISO/IEC Standard 17025:2017, General requirements for the competence of testing and calibration laboratories and supplementary criteria for Calibration laboratories.

Certificate Number: CL-136

Issue Date: 11.10.2024 **Valid Until**: 10.10.2026

The certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard and the relevant requirements of FDAS. (for scope of accreditation visit website www. fdasindia.org).

DEVI SARAN TEWARI
Director

FEDERATION FOR DEVELOPMENT OF ACCREDITATION SERVICES

118-119, First Floor, Sushant Tower, Sector – 56, Gurugram – 122011, Haryana, India.

SCOPE OF ACCREDITATION

(Annexure to Certificate of **CL-136**)

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Plot No 18,19, Survey No – 118, Byraveshwara Nagar,
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Bengaluru- 560110 (Karnataka), India

Validity: 11.10.2024 to 10.10.2026 **Amended on** N/A

S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *

Electro-Technical Calibration (Laboratory Based)

Group : Measure Mode				
1.	AC Current @50Hz	Using6½DMM&Direct Method as per IS 1248:2021	30µA to 100mA	0.45% to 0.21%
			1A to 10A	0.37% to 0.70 %
2.	AC Voltage@50Hz	Using 6½ DMM &Direct Method as per IS 1248:2021	100 mV to 1V	0.80% to 0.60%
			1V to 10 V	0.60% to 0.15%
			10 V to 900 V	0.15%
3.	AC Resistance @1kHz	Using LCR Meter & Direct Method as per IS 2806:1992	0.01 ohms to10 kohms	0.34 %
4.	AC Capacitance @ 1 kHz	Using LCR Meter & 6½ DMM & Direct Method	0.13 nF to 1 nF	6.0 % to 1.17 %
			1nF to 1000 nF	1.17 % to 2.02 %
			1000 nF to 0.09 mF	2.02 % to 3.0 %
5.	AC Inductance @1kHz	Using LCR Meter & Direct Method	1 mH to 10 H	0.51 % to 0.42 %
6.	DC Current	Using 6½DMM & Direct Method as per IS 1248:2021	100 µA to 10A	0.34%
7.	DC Resistance	Using 6½DMM & Direct Method as per IS 2806:1992	100 ohms to 100 Mohms	1.10%
			100 Mohms to1000 Mohms	1.10 % to 2.39 %
8.	DC Voltage	Using 6½DMM & Direct Method as per IS 1248:2021	10 mV to 1V	0.50% to 0.31%
			1 V to 10 V	0.31 % to 0.15 %
			10 V to 900 V	0.15 % to 0.02 %
9.	Frequency	Using 6½DMM & Direct Method as per IS 1248:2021	10Hz to1000kHz	0.09% to 0.06%
10.	Time	Using Time Calibrator &Direct Method	10 s to 1hr.	0.3s to 2.18s
			1 hr to 5 hrs.	2.18 s to 54 s
			5 hrs to 24 hrs.	54 s to 4.31 s

Jitendra Parmar
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S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *

Electro-Technical Calibration (Laboratory Based)

Group : Source Mode				
1.	DC Resistance(2Wire)	High Precision Decade Resistance & Mega Ohms Box	10 mohm to 100 mohm	5.22 % to 1.73 %
			10 Mohm to 1000 Mohm	1.16 % to 1.32 %

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S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *

Mechanical Calibration (Laboratory Based)

Group: Dimension				
1.	Snap Gauge, Gap Gauge, Dial Snap Gauge	Using Slip Gauges / IS 3455:1971	2.5 mm to 150mm	3µm
2.	Plunger Dial Gauge (L.C:0.001 mm)	Using Slip Gauges set/ IS 2092:1983	0.001mm to 50 mm	5.89 µm
3.	Caliper -Vernier / Dial / Digital (L.C:0.01 mm) or coarser	Using Caliper Checker & Long Slip Gauges / IS 16491 part-1: 2016	1 mm to 300 mm	8.86 µm
4.	Caliper - Vernier / Dial / Digital (L.C:0.01 mm) or coarser	Using Caliper Checker & Long Slip Gauges / IS 16491 part-1: 2016	>300 mm to 600 mm	9.21µm
5.	Caliper - Vernier / Dial / Digital (L.C:0.01 mm) or coarser	Using Caliper Checker & Long Slip Gauges / IS 16491 part-1: 2016	>600 mm to 1000 mm	15.57 µm
6.	Coating Thickness Gauge	Using Standard Foils / IS 12434:1988	10 µm to 950 µm	3.19 µm
7.	Depth Gauge- Vernier/Dial /Digital (L.C:0.01 mm) or coarser	Using Slip Gauge Set/ IS 16491 part-1: 2016	0.01 mm to 100 mm	8.32 µm
8.	Depth Micrometer (L.C:0.001mm)	Using Slip Gauge Set/ IS 2966:1964	0.001 mm to 100 mm	6.74 µm
9.	External Micrometer (L.C:0.001mm) or coarser	Using Slip Gauge Set / IS 2967:1983	0.001 mm to 150 mm	2.43 µm

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S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
	Mechanical Calibration (Laboratory Based)			
10.	External Micrometer (L.C:0.001mm) or coarser	Using Slip Gauge Set / IS 2967:1983	>150 mm to 300 mm	6.84 µm
11.	External Micrometer (L.C:0.01mm) or coarser	Using Slip Gauge Set / IS 2967:1983	>300 mm to 600 mm	6.97 µm
12.	Feeler Gauge / Standard Foil	Using Digital Micrometer by Comparison Method as per IS 3179:1990	10 µm to 1 mm	8.58 µm
13.	Height Gauge - Vernier/Dial/ Electronic (L.C:0.001 mm) or coarser	Using Slip Gauge Set, Caliper Checker, Long Slip Gauge & Surface Plate / IS 2921:2016	0.01mm to 300 mm	7.97µm
			>300 mm to 600 mm	10.09 µm
			>600 mm to 1000 mm	11.49µm
14.	Internal Micrometer / Stick (L.C:0.001 mm) or coarser	Using Slip Gauge Set, Slip Gauge Accessories & Caliper Checker / IS 2966:1964	0.001mm to 300 mm	6.47 µm
15.	Thickness Gauge / Dial & Digital (L.C:0.001 mm) or coarser	Using Slip Gauge Set / IS 14271:1995	0.001 mm to 50 mm	6.64 µm
16.	Cube Mould (Parameter-Distance between Opposite faces, Height of mould, Thickness of wall plate, Length/width/ thickness of base	Using Digi Matic Caliper / IS 10086:2021	50*50*50 mm to 150*150*150 mm	0.12mm

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S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *

Mechanical Calibration (Laboratory Based)

	plate Deviation from perpendicularity between interior faces and top)			
Group: Acoustics				
1.	Sound Level Meter	Using Sound Level Calibrator / IS9779:2019	94 dB -114 dB	0.85 dB
Group: Mass (Weight)				
1.	Weight F2 Class and Coarser	Using Standard Weights of E2 Class & Weighing Balance as per OIML-R 111-1:2004 (Readability:0.01 mg)	1mg	0.02 g
			2mg	0.02 mg
			5mg	0.02 mg
			10mg	0.02 g
			20mg	0.02 mg
			50mg	0.02 mg
			100mg	0.02 g
			200mg	0.03 mg
			500mg	0.03 mg
			1g	0.05 mg
			2g	0.05 mg
			5g	0.05 mg
			10g	0.05m g
			20g	0.08 mg
			50g	0.13 mg
			100 g	0.20 mg
			200g	0.20 mg

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S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *

Mechanical Calibration (Laboratory Based)

Group: Mass (Balance)				
1.	Electronic Weighing Balance d=0.1mg & coarser	Using Standard Weights of E2 Class as per OIML-R76 :2006	80 g to 200 g	0.18mg
2.	Electronic weighing Balance d=0.1g & coarser	Using Standard Weights of E2 & F2 Class as per OIMLR-76 :2006	1mg to 200 g	0.03g
3.	Electronic weighing Balance d=0.1g & coarser	Using Standard Weights of E2 & F2 Class as per OIML-R76 :2006	200 g to 3 kg	0.06g
4.	Electronic Weighing Balance/Weighing Scaled d=1g	Using Standard Weights of F2 Class as per OIML-R76 :2006	3 kg to 20 kg	1.3 g
5.	Electronic Weighing Balance d=50g	Using Standard Weights of F2, M1 Class as per OIML-R76 :2006	20 kg to 300 kg	0.03 kg
Group: Mass (Volume)				
1.	Micro Pipette	Distilled Water and balances Gravimetric Method & ISO 8655-6:2022	20µl to1000µl	1.4µl
2.	Pycnometer	Distilled Water and balances Gravimetric Method ISO 4787:2021 & ISO /TR20461:2000	50ml to100ml	0.19ml

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S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *

Mechanical Calibration (Laboratory Based)

3.	Volumetric Measures	E2class weights, Distilled Water, and 0.01/0.1 mg balances Gravimetric Method& ISO 4787:2021& ISO/TR20461:2000	0.1 ml to 150 ml	0.18 ml
Group: Speed& Acceleration				
1.	RPM Meter, RPM Indicator,Centrifuge, Refrigerated Centrifuge, Shaking Incubator	Using Reference Tachometer & by Comparison Method as per SANAS TR 45-02	10 rpm to 90000 rpm	4.79%
Group : Pressure &Vacuum				
1.	Pressure Measurement Devices (Digital / Analogue Pressure Gauges, Differential Pressure Gauge, Transducers, Transmitters, Switches) PressureIndicator, pressure Switch, Pressure Relief Valve.	Using a Digital Pressure Gauge&Hydraulic Comparator by Comparison Method as per DKD-R-6-1:2014	0 bar to 40 bar	0.02 bar
			0 bar to 700bar	0.47 bar

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S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *

Mechanical Calibration (Laboratory Based)

S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
2.	Vacuum Gauge, Vacuum Transducer, Vacuum Transmitter &Vacuum Switches- Negative Pressure	Using Digital Pressure Gaugewith Comparator by Comparison Method as per DKD-R-6-1:2014	(-)0.80 bar to 0 bar	0.029 bar
3.	Low Pressure / Differential Pressure (Analog/Digital) Gauges/ Magnehelic Gauge /Manometer Differential Pressure Transmitter / Pressure Sensor with Indicator	Using Digital Manometer &By Comparison Method. Procedure based on DKD-R-6-1:2014	(-)25 mbar to 25 mbar	0.10mbar
4.	Low Pressure / Differential pressure (Analog/Digital) Gauges/ Magnehelic Gauge /Manometer Differential Pressure Transmitter / pressure sensorwith Indicator	Using Digital Manometer &By Comparison Method. Procedure based ON DKD-R-6-1:2014	Up to 500 mbar	1.39 mbar

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S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
		Mechanical Calibration (At Site)		
Group: Mass(Balance)				
1.	Electronic Weighing Balanced=0.1 mg	Using Standard Weights of E2 Class as per OIML-R76 :2006	80 g to200 g	0.18mg
2.	Electronic weighing Balanced=0.1g	Using Standard Weights of E2 & F2 Class asper OIML-R76 :2006	200 g to 3kg	0.06g
3.	Electronic weighing Balance/Weighing Scaled =1g	Using Standard Weights of F2 Class as per OIML-R76 :2006	3 kg to20 kg	1.3g
4.	Electronic Weighing Balance d= 50g	Using Standard Weights of M1 Class as per OIML-R76 :2006	1 kg to 300 kg	0.03kg
Group : Speed& Acceleration				
1.	RPM Meter , RPMIndicator, Centrifuge, Refrigerated Centrifuge, Shaking Incubator	Using Reference Tachometer & By Comparison Method as per SANAS TR 45-02	10 RPM to 90000 r p m	5.35 RPM
Group: Pressure Vacuum				
1.	Pressure Gauge, Pressure Indicator, Pressure Switch, Pressure Transmitter, Pressure Relief Valve.	Using a Digital Pressure Calibrator&Hydraulic Comparator by Comparison Method as per DKD-R-6-1:2014	0 bar to 40 bar	0.15bar
			0 bar to700 bar	0.50bar

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S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *

Mechanical Calibration (At Site)

2.	Vacuum Gauge, Vacuum transducer, Vacuum Transmitter & Vacuum Switches- Negative Pressure	Using Digital Pressure Calibrator with Comparator by Comparison Method as per DKD-R-6-1:2014	(-) 0.80 bar to 0 bar	0.048bar
3.	Low Pressure / Differential Pressure Gauge (Analog/Digital) Magnehelic Gauge /Manometer Differential Pressure Transmitter / pressure sensor with Indicator	Using Digital Manometer & ByComparison Method. Procedure based ON DKD-R-6-1:2014	(-)25 mbar to 25 mbar	0.07mbar
			Upto 500 mbar	0.17mbar

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S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *

Thermal Calibration (Laboratory Based)

Temperature & Humidity				
1.	Thermo Hygrometer, Temperature &Humidity Meter, Humidity Indicator, Humidity Transmitter, Dial /Digital Humidity Meter Temperature and Humidity Data Logger,Humidity Transmitter with indicator,	Using Class-A RTD With Indicator & Humidity Meter by Comparison Method	5°C to 50°C @ 50 % RH	0.96 °C
2.	Thermo Hygrometer, Temperature & Humidity Meter, Humidity Indicator, Humidity Transmitter, Temperature and Humidity Data Logger, Humidity Transmitter with indicator	Using Class-A RTD With Indicator & Humidity Meter by Comparison Method	10 % RH to 95 % RH @ 25°C	1.02 % RH
3.	Liquid in Glass Thermometer	Using Class-A RTD With Indicator, by Comparison Method OIML- R133:2002	(-)80 °C to250 °C	1.18 °C
4.	RTD, Thermocouple, RTD WithIndicator, SSPRT with indicator, Thermocouple with Indicator, Digital	Using Class-A RTD With Indicator by Comparison Method	(-)80 °C to 25°C	0.97 °C

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S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *

Thermal Calibration (Laboratory Based)

	Thermometer with sensor, Temperature Gauge, Temperature/ Data Logger with Sensor/Temperature Scanner with sensor, Temperature Transmitter			
5.	RTD'S, Thermocouple, RTD WithIndicator, SSPRT with indicator, Thermocouple with Indicator, Digital Thermometer with sensor, Temperature Gauge, Temperature/ Data Logger with Sensor/Temperature Scanner with sensor, Temperature Transmitter	Using Class-A RTD With Indicator by Comparison Method	25°C to 400°C	1.62 °C
6.	Temperature Indicator, Thermostat, RTDwith indicator and Thermocouple, Temperature Baths, Oil bath, Dry Bath, Thermocouple with Indicator, Digital	Using SSPRT RTD With Indicator by Comparison Method	(-)80°C to400°C	1.56 °C

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Thermal Calibration (Laboratory Based)

	Thermometer with sensor, Temperature Gauge, Temperature/ Data Logger with Sensor/Temperature Scanner / Temperature Transmitter with sensor,			
7.	Temperature Indicator, Thermostat Thermocouple, Temperature Baths, Oil bath, Dry Bath, Thermocouple with Indicator, Digital Thermometer with sensor,Temperature Gauge, Temperature/ Data Logger with Sensor/Temperature Scanner with sensor, Temperature Transmitter	Using S Type TC with Indicator by Comparison Method	400°C to 1200°C	3.8 °C
8.	IR Thermometer/ Pyrometer/Thermal Imager	Using a Pyrometer with the black body (Emissivity:0.95) by comparison method	50 °C to 500 °C	3.31 °C

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Thermal Calibration (At Site)

Temperature & Humidity				
1.	Humidity Chamber/Stability Chamber, Humidity Chambers, Climatic Chambers, Dry cabinet, De-humidifier (Single Point)	Using Humidity Meterand SSPRT Sensor withDMM by Comparison Method	-80°C to 60°C @50% RH	0.91°C
2.	Humidity Chamber/Stability ChamberDry Storage Chamber/Cabinet (SinglePoint)	Using Humidity Meter by Comparison Method	20 % RH to 95 % RH @ 25°C	0.91 % RH
3.	Thermo hygrometer and humidity datalo bggers	Using Thermo hygrometer & Humidity Salt by Comparison method	20 % RH to 95 % RH @25°C	0.94 % RH
4.	RTD'S, Thermocouple, RTD With Indicator, SPRT with indicator, Thermocouple with Indicator, Digital Thermometer with sensor, Temperature Gauge, Temperature/ Data Logger with Sensor/Temperature Scanner with sensor,	Using Class-A RTD With Indicator by Comparison Method	-35°C to 25°C	0.89 °C

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S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
		Thermal Calibration (At Site)		
5.	RTD'S, Thermocouple, RTD With Indicator, SPRT with indicator, Thermocouple with Indicator, Digital Thermometer with sensor, Temperature Gauge, Temperature/ Data Logger with Sensor/Temperature Scanner with sensor, Temperature Transmitter	Using Class-A RTD With Indicator by Comparison Method	25°C to 400°C	1.62 °C
6.	RTD'S, Thermocouple, RTD With Indicator, SPRT with indicator, Thermocouple with Indicator, Digital Thermometer with sensor, Temperature Gauge, Temperature/ Data Logger with Sensor/Temperature Scanner with sensor, Temperature Transmitter	Using S Type Thermocouple with Indicator by Comparison Method	400°C to 1200°C	3.61 °C

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S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
		Thermal Calibration (At Site)		
7.	Multi-channel mapping of Environmental/Walking/Temp. chamber, Oven, Cold Room, Deep freezer, Dry HeatSterilizer, Co2 Incubator, Incubator, Autoclave (Only non-medical Purpose)	Using RTD Sensors with Data Logger by Comparison Method IEC-60068 3-5:2001	(-)80°C to 300°C	4.40 °C
8.	Temperature Indicator ofIncubator, Stability Chamber, BOD Incubator, Oven, Temperature Baths, Oil bath, Dry Bath, Freezers, Deep freezer, Cold Room, Refrigerator, Refrigerated Centrifuge (Single Point)	Using Class-A RTD With Indicator by Comparison Method	-80°C to 25°C	0.89 °C
9.	Temperature Indicator of Oven, Incubator, Refrigerated Centrifuge, CO2 Incubator, Chamber,	Using Class-A RTD With Indicator by Comparison Method	25°C to 400°C	1.62 °C

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Thermal Calibration (At Site)

S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
	BOD Incubator, Temperature Baths, Oil bath, Dry Bath, Water Bath, Autoclave (ForNon-medical purpose), Muffle furnace, Furnace (Single Point)			
10.	Temperature Indicator of Temperature Baths, Chamber, Oil bath, DryBath, Muffle Furnace, Furnace (Single Point)	Using S Type Thermocouple with Indicator by Comparison Method	400°C to 1200°C	3.60 °C
11.	Temperature Chamber, Freezer, Cold Rooms, Sterilizer, Oven, incubator, Autoclave, Oil Bath, Low & High Temperature Bath, Dry Bath, Incubators &Autoclave, Thermal Chambers / Ovens, Water Bath, Furnace (Mapping Only Temperature).	Using RTD Sensor with Paperless Recorder by Comparison Method.	-80°C to 100°C	4.20 °C

Dealing Officer

FEDERATION FOR DEVELOPMENT OF ACCREDITATION SERVICES

118-119, First Floor, Sushant Tower, Sector – 56, Gurugram – 122011, Haryana, India.

SCOPE OF ACCREDITATION

(Annexure to Certificate of **CL-136**)

Laboratory Name: AKSHAR CALIBRATION SERVICES.
Plot No 18,19, Survey No – 118, Byraveshwara Nagar,
Manganahalli Cross, Ullal Main Road, Ullal(P),
Bengaluru- 560110 (Karnataka), India

Validity: 11.10.2024 to 10.10.2026 **Amended on** N/A

S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *

Thermal Calibration (At Site)

S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
12.	Oil Bath, Low & High Temperature Bath, Dry Bath, Incubators &Autoclave, Thermal Chambers / Ovens, Water Bath,Furnace Furnace, Oven (Mapping)	Using 'N' Type Thermocouple with Paperless Recorder by Comparison Method.	100°C to 1200°C	5.50 °C
13.	Temperature for Non-Contact Type sensor	MSL TechnicalGuide by Comparison Method	50 to 500	3.03°C

*** Expanded uncertainty expressed in coverage probability of approximately 95% (coverage factor K=2)**

Jitendra Parmar
Dealing Officer