

Accreditation Scope

Emirates Calibration Services, NAL 130
Calibration Laboratory, (ISO/IEC 17025:2017)

Mussafah Industrial Area, Abu Dhabi, UAE

Issue Date: 09-01-2020

Expiry Date: 29-04-2022

Issue No: 03

Calibration Field / Quantity / Property	Measurand / Equipment	Measuring Range	CMC (k=2)	Calibration Method (Standard/ Internal Procedure)	Permanent lab (P) / Client-site (S)
Radio Frequency Microwave	RF Power meter @ 0.1 MHz to 6 GHz	(-140 to 10) dBm	0.13 dB	ECS-GCP-RF-03 (RF-03) ver. 2019	P
	AM Modulation meters @ 0.010 GHz to 1.0 GHz	5% to 25%	1.1 %	ECS-GCP-RF-02 (RF-02) ver. 2019	
		25% to 50%	1.8 %		
		50% to 75%	2.6 %		
		75% to 90%	3.0 %		
	FM Modulation @ 20 Hz to 50 kHz	0.5 kHz to 1 kHz	12 Hz	ECS-GCP-RF-02 (RF-02) ver. 2019	
		1 kHz to 10 kHz	0.2 kHz		
		10 kHz to 50 kHz	0.9 kHz		
	PM Modulation @ 20 Hz to 50 kHz	50 kHz to 200 kHz	3.4 kHz	ECS-GCP-RF-02 (RF-02) ver. 2019	
		1 rad to 10 rad	0.08 rad		
10 rad to 25 rad		0.10 rad			
Frequency	25 rad to 50 rad	0.15 rad	ECS-GCP-RF-01 (RF-01) ver. 2019		
	20 Hz to 20 GHz	$1.8 \cdot 10^{-7} \cdot f$			
Electrical Power	Single & 3 Phase AC Energy Power Meter	(3.0 to 510) V (0.02 to 115) A (-180 to 180) Degree	0.18 V 0.14 A 0.01 Degree	ECS-GCP-EM-01 (EM-01) ver. 2019	P / S
Electrical (Measure)	AC Voltage @ 40 Hz to 100 kHz	Up to 1 V	0.03 mV	ECS-GCP-EM-02 (EM-02) ver. 2020	P / S
		1 V to 10 V	0.30 mV		
		10 V to 100 V	2.5 mV		
		100 V to 1 kV	21 mV		

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	DC voltage	Up to 100 mV	0.03 mV	ECS-GCP-EM-02 (EM-02) ver. 2020	P / S
		100 mV to 10 V	0.30 mV		
		10 V to 100 V	30 mV		
		100 V to 1 kV	0.30 V		
Electrical (Measure)	AC Current @ 40 Hz to 1 kHz	Up to 100 mA	0.25 mA	ECS-GCP-EM-02 (EM-02) ver. 2020	P / S
		100 mA to 3 A	0.45 mA		
		3A to 600A	2.0 A		
Electrical (Measure)	DC Current	Up to 100 mA	0.25 mA	ECS-GCP-EM-02 (EM-02) ver. 2020	P / S
		100 mA to 3 A	0.45 mA		
		3A to 600 A	2.0 A		
Electrical (Measure)	Resistance	Up to 1 mΩ	0.01 mΩ	ECS-GCP-EM-02 (EM-02) ver. 2020	P / S
		1 to 10 mΩ	0.03 mΩ		
		10 to 100 mΩ	0.25 mΩ		
		100 mΩ to 1 Ω	2.8 mΩ		
		1 Ω to 10 Ω	0.03 Ω		
		10 Ω to 100 Ω	0.25 Ω		
		100 Ω to 1 kΩ	0.25 Ω		
		1 kΩ to 10 kΩ	2.5 Ω		
10 kΩ to 100 kΩ	25 Ω				

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Electrical (Measure)	Resistance	100 kΩ to 1 MΩ	0.03 MΩ	ECS-GCP-EM-02 (EM-02) ver. 2020	P / S
		1 MΩ to 10 MΩ	0.25 MΩ		
		10 MΩ to 100 MΩ	2.5 MΩ		
		100 MΩ to 1 GΩ	0.03 GΩ		
Electrical (Source)	AC Volt meter @ 40 Hz to 100 kHz	3 mV to 33 mV	0.01 mV	ECS-GCP-E-01 (E-01) ver. 2019	P / S
		33 mV to 330 mV	0.06 mV		
		0.330 V to 3.3 V	0.60 mV		
		3.3 V to 33 V	5.9 mV		
		33 V to 330 V	0.07 V		
		330 V to 1020 V	0.37 V		
Electrical (Source)	DC Volt meter	3 mV to 33 mV	3.9 μV	ECS-GCP-E-01 (E-01) ver. 2019	P / S
		33 mV to 330 mV	8.8 μV		
		0.330 V to 3.3 V	0.04 mV		
		3.3 V to 33 V	0.58 mV		
		33 V to 330 V	8.4 mV		
		330 V to 1020 V	0.02 V		

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Electrical (Source)	DC Current meter/Clamp meter	3 μ A to 33 μ A	0.03 μ A	ECS-GCP-E-01 (E-01) ver. 2019	P / S
		33 μ A to 330 μ A	0.08 μ A		
		0.330 mA to 3.3 mA	5.9 μ A		
		3.3 mA to 33 mA	0.06 mA		
		33 mA to 330 mA	0.58 mA		
		0.330 A to 3 A	6.0 mA		
		3 A to 20.5 A	0.06 A		
		20.5 A to 600 A	0.06 A		
Electrical (Source)	AC Current meter/clamp meter @ 40 Hz to 1 kHz	3 μ A to 33 μ A	0.16 μ A	ECS-GCP-E-01 (E-01) ver. 2019	P / S
		33 μ A to 330 μ A	0.55 μ A		
		0.330 mA to 3.3 mA	3.8 μ A		
		3.3 mA to 33 mA	0.02 mA		
		33 mA to 330 mA	0.16 mA		
		0.330 A to 3 A	2.8 mA		
		3 A to 20.5 A	14 mA		
		20.5 A to 600 A	14 mA		

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Electrical (Source)	Frequency	0.1 Hz to 1 Hz	0.06 Hz	ECS-GCP-E-01 (E-01) ver. 2019	P / S
		1 Hz to 10 Hz	0.07 Hz		
		10 Hz to 100 Hz	0.09 Hz		
		100 Hz to 1000 Hz	0.58 Hz		
		1 kHz to 10 kHz	5.8 Hz		
		10 kHz to 100 kHz	0.06 kHz		
		100 kHz to 1000 kHz	0.58 kHz		
		1 MHz to 2 MHz	0.58 kHz		
Electrical (Source)	Resistance	0.1 Ω to 11 Ω	0.50 m Ω	ECS-GCP-E-01 (E-01) ver. 2019	P / S
		11 Ω to 33 Ω	0.68 m Ω		
		33 Ω to 110 Ω	1.3 m Ω		
		110 Ω to 330 Ω	10 m Ω		
		0.33 k Ω to 1.1 k Ω	0.06 Ω		
		1.1 k Ω to 3.3 k Ω	0.33 Ω		
		3.3 k Ω to 11 k Ω	0.46 Ω		
		11 k Ω to 33 k Ω	2.2 Ω		

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Electrical (Source)	Resistance	33 k Ω to 110 k Ω	4.6 Ω	ECS-GCP-E-01 (E-01) ver. 2019	P / S
		110 k Ω to 330 k Ω	14 Ω		
		0.33 M Ω to 1 M Ω	0.05 k Ω		
		1.1 M Ω to 3.3 M Ω	0.42 k Ω		
		3.3 M Ω to 11 M Ω	1.8 k Ω		
		11 M Ω to 33 M Ω	19 k Ω		
		33 M Ω to 110 M Ω	0.06 M Ω		
		110 M Ω to 330 M Ω	1.4 M Ω		
		0.33 G Ω to 1.1 G Ω	0.02 G Ω		
Electrical	Capacitance	0.35 nF to 1.1 nF	0.02 nF	ECS-GCP-E-01 (E-01) ver. 2019	P / S
		1.1 nF to 3.3 nF	0.02 nF		
		3.3 nF to 11 nF	0.04 nF		
		11 nF to 33 nF	0.15 nF		
		33 nF to 109 nF	0.41 nF		
		109 nF to 300 nF	0.87 nF		
		0.300 μ F to 1.09 μ F	4.1 nF		

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Electrical	Capacitance	1.09 μ F to 3 μ F	7 nF	ECS-GCP-E-01 (E-01) ver. 2019	P / S
		3 μ F to 10.9 μ F	0.04 μ F		
		10.9 μ F to 30 μ F	0.09 μ F		
		30 μ F to 109 μ F	0.64 μ F		
		109 μ F to 300 μ F	0.93 μ F		
		0.300 mF to 1.09 mF	6.4 μ F		
		1.09 mF to 3 mF	8.7 μ F		
		3 mF to 10.9 mF	0.06 mF		
		10.9 mF to 30 mF	0.12 mF		
		30 mF to 109 mF	1.5 mF		
Acoustic	Sound Level Meters / Calibrator	94.0 dB, 114 dB	0.4 dB	ECS-GCP-SL-08 (SL-08) ver. 2019	P
Rotational Speed	Centrifuges	(0 to 100 000) RPM	1 RPM	ECS-GCP-E-09 (E-09) ver. 2019	P / S
	Tachometer	(0 to 10 000) RPM	1 RPM		

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Temperature	Freezer/Oven / Refrigerator / Incubator/ Furnace	(-60 to 100) °C	0.41 °C	ECS-GCP-T-01 (T-01) ver. 2020	P / S	
		(100 to 1000) °C	1.5 °C			
		(-200 to 100) °C	0.3 °C	ECS-GCP-T-01 (T-01) ver. 2020		
		(100 to 420) °C	0.5 °C			
	RTD	(-40 to 200) °C	0.08 °C	Method: ECS-GCP-T-01, Reference Sensor:PT-100	P	
	TC/Bimetallic	(-40 to 200) °C	0.4 °C			
	Thermometer / Temperature Sensor /	Thermometer / Temperature Sensor /	(30 to 100) °C	0.41 °C	ECS-GCP-T-01 (T-01) ver. 2020	P / S
			(100 to 300) °C	0.61 °C		
			(300 to 600) °C	1.5 °C		
		Thermo-hygrometer / Data loggers	(-20 to 60) °C	0.61 °C	ECS-GCP-T-01 (T-01) ver. 2020	P / S
Humidity	Humidity Measuring Sensors/ Indicators	(25 to 75) %RH	2 %RH			
Torque	Torque Wrench, Torque Transducer, Screwdriver	(2 to 40) N.m	0.25 N.m	ECS-GCP-TW-01 (TW-01) ver. 2017	P / S	
		(> 40 to 1500) N.m	0.5 N.m			

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Pressure	Pressure / Vacuum Pressure Meters, Pressure Sensors, Pressure Transducers	- 0.998 bar to 20 bar	4.2 mbar	ECS-GCP-P-01 (P-01) ver. 2020	P / S	
		0 bar to 700 bar	0.16 bar			
		-1 bar to 0 bar	1.8 mbar			
		0 bar to 30 bar	3.9 mbar			
		30 bar to 70 bar	0.05 bar			
Mass	Balance	(0 to 200) g	0.65 mg	ECS-GCP-M-01 (M-01) ver. 2019	P / S	
		(0 to 1000) g	0.82 mg			
		(0 to 5000) g	7.2 mg			
		(0 to 20) kg	5.8 g			
		(0 to 1000) kg	0.06 kg			
	Weights		(1 to 500) mg	0.06 mg	ECS-GCP-M-02 (M-02) ver. 2019	P / S
			(1 to 10) g	0.06 mg		
			20 g	0.07 mg		
			50 g	0.09 mg		
			100 g	0.16 mg		
			200 g	0.3 mg		
			(500 to 1000) g	5.8 mg		
			5 kg	5.8 mg		
			20 kg	0.58 g		

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Dimensional	Micrometer	(0 to 150) mm	3 μ m	ECS-GCP-D-01 (D-01) ver. 2014	P / S
	Dial Gauge/Indicator	(0 to 150) mm	6 μ m	ECS-GCP-D-02 (D-02) ver. 2020	P / S
	Caliper	(0 to 150) mm	12 μ m	ECS-GCP-D-03 (D-03) ver. 2020	P / S
END					