

## 10.15 Scope of Accreditation

Issue No: 1/ Issue Date: 08-December-2019  
File Manager: Hamza Khan

### Calibration Laboratory Accreditation No. ACL 0013

is accredited by the GCC Accreditation Center (GAC) in accordance with the recognized International Standard ISO/IEC 17025:2017, “General requirements for the competence of testing and calibration laboratories”

GCC Electrical Testing Laboratory - Laboratory	
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Accreditation Withdrawn

**Locations where calibration activities covered by the above Accreditation Standard are undertaken**

1- address DPC941 – Building 3199 Power System Support, Old Abqaiq Road, Saudi Aramco Dhahran

**For the following scope:**

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**CALIBRATION**

ISO/IEC 17025:2017

No. ACL 0013

### Scope:

#### **1.0 Calibration field: (Electrical)**

- .01 Voltage Producing and Measuring
- .02 Current Producing and Measuring
- .03 Capacitance Producing and Measuring
- .04 Resistance Producing and Measuring

Scope details are as follows:

# Accreditation Withdrawn

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Measurand	Measuring Range	CMC Expressed as an Expanded Uncertainty (k = 2) **	Method (standard/guide + internal procedure)	Type of Instrument or Material	Permanent lab (P) / Client-site (S) *
DC Voltage (Generating)	Up to 329.999 mV	20 $\mu\text{V}/\text{V} + 0.02 \text{ uV}$	CAL/HVTL-WI-18	Electrical Sourcing Device (Multi-function Calibrator) FLUKE 5522A	P
	330.0 mV to 3.299 V	11 $\text{uV}/\text{V} + 2 \text{ uV}$			
	3.30 V to 32.99 V	12 $\text{uV}/\text{V} + 20 \text{ uV}$			
	33.00 V to 329.99 V	18 $\text{uV}/\text{V} + 0.15 \text{ mV}$			
	330.0 V to 1000 V	18 $\text{uV}/\text{V} + 1.5 \text{ mV}$			
DC Current (Generating)	Up to 329.99 $\mu\text{A}$	15 $\text{mA}/\text{A} + 0.02 \text{ uA}$	CAL/HVTL-WI-18	Electrical Sourcing Device (Multi-function Calibrator) "FLUKE 5522A"	P
	330 $\mu\text{A}$ to 3.299 mA	0.1 $\text{mA}/\text{A} + 0.05 \text{ uA}$			
	3.3 mA to 32.99 mA	0.1 $\text{mA}/\text{A} + 0.25 \text{ uA}$			
	33 mA to 329.99 mA	0.1 $\text{mA}/\text{A} + 2.5 \text{ uA}$			
	330 mA to 2.999 A	0.38 $\text{mA}/\text{A} + 40 \text{ uA}$			
3 A to 20 A	1.0 $\text{mA}/\text{A} + 0.75 \text{ mA}$				
Resistance (Generating)	Up to 10.999 $\Omega$	40 $\text{u}\Omega/\Omega$	CAL/HVTL-WI-18	Electrical Sourcing Device (Multi-function Calibrator) "FLUKE 5522A"	P
	11 $\Omega$ to 32.999 $\Omega$	30 $\text{u}\Omega/\Omega$			
	33 $\Omega$ to 109.999 $\Omega$	28 $\text{u}\Omega/\Omega$			
	110 $\Omega$ to 329.999 $\Omega$	28 $\text{u}\Omega/\Omega$			
	330 $\Omega$ to 1.0999 k $\Omega$	28 $\text{u}\Omega/\Omega$			
	1.1 k $\Omega$ to 3.2999 k $\Omega$	28 $\text{u}\Omega/\Omega$			
	3.3 k $\Omega$ to 10.999 k $\Omega$	28 $\text{u}\Omega/\Omega$			
	11 k $\Omega$ to 32.999 k $\Omega$	28 $\text{u}\Omega/\Omega$			
	33 k $\Omega$ to 109.999 k $\Omega$	28 $\text{u}\Omega/\Omega$			
	110 k $\Omega$ to 329.999 k $\Omega$	32 $\text{u}\Omega/\Omega$			
	330 k $\Omega$ to 1.0999 M $\Omega$	32 $\text{u}\Omega/\Omega$			
	1.1 M $\Omega$ to 3.2999 M $\Omega$	60 $\text{u}\Omega/\Omega$			

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	3.3 MΩ to 10.999 MΩ	0.13 mΩ/Ω			
	11 MΩ to 32.999 MΩ	0.25 mΩ/Ω			
	33 MΩ to 109.999 MΩ	0.5 mΩ/Ω			
	110 MΩ to 329.999 MΩ	3 mΩ/Ω			
AC Voltage (Generating)	1.0 mV to 32.999 mV ( 10 Hz to 45 Hz)	0.26 mV/V + 2 uV	CAL/HVTL-WI-18	Electrical Sourcing Device (Multi-function Calibrator) "FLUKE 5522A"	P
	1.0 mV to 32.999 mV ( 45 Hz to 10 kHz)	50 uV/V + 2 uV			
	1.0 mV to 32.999 mV ( 10 kHz to 20 kHz)	60 uV/V + 2 uV			
	1.0 mV to 32.999 mV ( 20 kHz to 50 kHz)	0.33 mV/V + 2 uV			
	1.0 mV to 32.999 mV ( 50 kHz to 100 kHz)	1.2 mV/V + 4 uV			
	1.0 mV to 32.999 mV ( 100 kHz to 500 kHz)	2.6 mV/V + 16 uV			
	33.0 mV to 329.999 mV (10 Hz to 45 Hz)	0.1 mV/V + 2 uV			
	33.0 mV to 329.999 mV (45 Hz to 10 kHz)	48 uV/V + 2 uV			
	33.0 mV to 329.999 mV (10 kHz to 20 kHz)	55 uV/V + 2 uV			
	33.0 mV to 329.999 mV (20 kHz to 50 kHz)	0.12 mV/V + 2 uV			
	33.0 mV to 329.999 mV (50 kHz to 100 kHz)	0.26 mV/V + 8 uV			
	33.0 mV to 329.999 mV (100 kHz to 500 kHz)	0.6 mV/V + 23 uV			

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AC Voltage (Generating)	0.33 V to 3.29999 V (10 Hz to 45 Hz)	0.1 mV/V + 17 uV	CAL/HVTL-WI-18	Electrical Sourcing Device (Multi-function Calibrator) "FLUKE 5522A"	P
	0.33 V to 3.29999 V (45 Hz to 10 kHz)	50 uV/V + 20 uV			
	0.33 V to 3.29999 V (10 kHz to 20 kHz)	63 uV/V + 20 uV			
	0.33 V to 3.29999 V (20 kHz to 50 kHz)	0.1 mV/V + 16 uV			
	0.33 V to 3.29999 V (50 kHz to 100 kHz)	2.3 mV/V + 41 uV			
	0.33 V to 3.29999 V (100 kHz to 500 kHz)	0.8 mV/V + 0.2 mV			
	3.3 V to 32.9999 V (10 Hz to 45 Hz)	0.1 mV/V + 0.22 mV			
	3.3 V to 32.9999 V (45 Hz to 10 kHz)	50 uV/V + 0.2 mV			
	3.3 V to 32.9999 V (10 kHz to 20 kHz)	80 uV/V + 0.2 mV			
	3.3 V to 32.9999 V (20 kHz to 50 kHz)	83 uV/V + 2 mV			
	3.3 V to 32.9999 V (50 kHz to 100 kHz)	0.9 mV/V + 1.6 mV			
	33 V to 329.999 V (45 Hz to 1 kHz)	63 uV/V + 2 mV			
	33 V to 329.999 V (1 kHz to 10 kHz)	66 uV/V + 2 mV			
	33 V to 329.999 V (10 kHz to 20 kHz)	83 uV/V + 2 mV			
	33 V to 329.999 V (20 kHz to 50 kHz)	0.1 mV + 2 mV			
	33 V to 329.999 V (50 kHz to 100 kHz)	0.65 mV/V + 50 mV			
330 V to 1020 V (45 Hz to 1 kHz)	83 uV/V + 10 mV	CAL/HVTL-WI-18	Electrical Sourcing Device (Multi-function Calibrator) "FLUKE 5522A"	P	
330 V to 1020 V (1 kHz to 5 kHz)	0.1 mV/V + 10 mV				
29.00 uA to 329.99 uA (10 Hz to 20 Hz)	0.2 % + 0.1 uA				
29.00 uA to 329.99 uA (20 Hz to 45 Hz)	0.15 % + 0.1 uA				
29.00 uA to 329.99 uA (45 Hz to 1 kHz)	0.13 % + 0.1 uA				
29.00 uA to 329.99 uA (1 kHz to 5 kHz)	0.3 % + 0.15 uA				
29.00 uA to 329.99 uA (5 kHz to 10 kHz)	0.8 % + 0.2 uA				
29.00 uA to 329.99 uA (10 kHz to 30 kHz)	1.6 % + 0.4 uA				
0.33 mA to 3.29999 mA (10 Hz to 20 Hz)	0.2 % + 0.15 uA				
0.33 mA to 3.29999 mA (20 Hz to 45 Hz)	0.13 % + 0.15 uA				
0.33 mA to 3.29999 mA (45 Hz to 1 kHz)	0.1 % + 0.15 uA				

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29.00 $\mu$ A to 329.99 $\mu$ A (10 Hz to 20 Hz)	0.2 % + 0.2 $\mu$ A			
0.33 mA to 3.29999 mA (1 kHz to 5 kHz)	0.5 % + 0.3 $\mu$ A			
0.33 mA to 3.29999 mA (5 kHz to 10 kHz)	1 % + 0.6 $\mu$ A			
0.33 mA to 3.29999 mA (10 kHz to 30 kHz)	0.04 % + 2 $\mu$ A			
3.3 mA to 32.9999 mA (10 to 20 Hz)	0.08 % + 2 $\mu$ A			
3.3 mA to 32.9999 m (20 Hz to 45 Hz)	0.2 % + 3 $\mu$ A			
3.3 mA to 32.9999 mA (45 Hz to 1 kHz)	0.4 % + 4 $\mu$ A			
3.3 mA to 32.9999 mA ( 1 kHz to 5 kHz )	0.18 % + 20 $\mu$ A			
3.3 mA to 32.9999 mA ( 5 kHz to 10 kHz )	0.09 % + 20 $\mu$ A			
3.3 mA to 32.9999 mA ( 10 kHz to 30 kHz )	0.04 % + 20 $\mu$ A			
33 mA to 329.999 mA (10 Hz to 20 Hz)	0.1 % + 50 $\mu$ A			
33 mA to 329.999 mA ( 10 Hz to 45 Hz )	0.7 % + 0.1 mA			
33 mA to 329.999 mA (45 Hz to 1 kHz)	0.4 % + 0.2 mA			
33 mA to 329.999 mA (1 kHz to 5 kHz)	0.18 % + 0.1 mA			
33 mA to 329.999 mA (5 kHz to 10 kHz)	0.05 % + 0.1 mA			
33 mA to 329.999 mA (10 kHz to 30 kHz)	0.6 % + 1 mA			
0.33 A to 1.09999 A (10 Hz to 45 Hz)	2.5 % + 5 mA			
0.33 A to 1.09999 A (45 Hz to 1 kHz)	0.18 % + 0.1 mA			
0.33 A to 1.09999 A (1 kHz to 5 kHz)	0.06 % + 01 mA			
0.33 A to 1.09999 A (5 kHz to 10 kHz)	0.6 % + 1 mA			
1.1 A to 2.99999 A (10 Hz to 45 Hz)	2.5 % + 5 mA			
1.1 A to 2.99999 A (45 Hz to 1 kHz)	0.1 % + 2 mA			
1.1 A to 2.99999 A (1 kHz to 5 kHz)	3 % + 2 mA			
1.1 A to 2.99999 A (5 kHz to 10 kHz)	0.12 % + 5 mA			
3 A to 10.9999 A (100 Hz to 1 kHz)	0.15 % + 5 mA			
3 A to 10.9999A (1 kHz to 5 kHz)	3 % + 5 mA			

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Capacitance (Generating)	220.0 pF to 399.9 pF	84 fF	CAL/HVTL-WI-18	Electrical Sourcing Device (Multi-function Calibrator) "FLUKE 5522A"	P
	0.4 nF to 1.0999 nF	49 pF			
	1.1 nF to 3.2999 nF	36 pF			
	3.3 nF to 10.9999 nF	72 pF			
	11 nF to 32.9999 nF	15 pF			
	33 nF to 109.999 nF	61 pF			
	110 nF to 329.999 nF	0.2 nF			
	0.33 μF to 1.09999 μF	0.62 nF			
	1.1 μF to 3.2999 μF	1.8 nF			
	3.3 μF to 10.9999 μF	6.2 nF			
	11 μF to 32.9999 μF	22 nF			
	33 μF to 109.99 μF	0.14 uF			
	Resistance ( Measuring )	333.333 μΩ			
0.001 Ω		39 nΩ			
0.001 Ω		38 nΩ			
0.01 Ω		0.16 μΩ			
0.01 Ω		0.16 μΩ			
0.1 Ω		0.45 μΩ			
1 Ω		3.6 μΩ			
1 Ω		3.6 μΩ			
10 Ω		36 μΩ			
10 Ω		36 μΩ			
100 Ω		0.4 mΩ			
100 Ω		0.4 mΩ			
1000 Ω		3.6 mΩ			
10000 Ω		37 mΩ			

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H. Voltage DC (Measuring)	1000 V	0.26 V	CAL/HVTL-WI-17 & 4700-PW-112612	HV Precision Meter (vitrek, Model: 4700)	P
	5000 V	0.73V			
	10000 V	0.74 V			
	30000 V	0.72 V			
	50000 V	0.98 V			
	70000 V	1.6 V			
	90000 V	2.4 V			
H. Voltage AC (Measuring)	1000 V (0.01 Hz to 600Hz)	0.86 V	CAL/HVTL-WI-17 & 4700-PW-112612	HV Precision Meter (vitrek, Model: 4700)	P
	5000 V (0.01 Hz to 600Hz)	2.9 V			
	10000 V (0.01 Hz to 600Hz)	2.9 V			
	30000 V (0.01 Hz to 600Hz)	2 V			
	50000 V (0.01 Hz to 600Hz)	1.7 V			
	100000 V (0.01 Hz to 600 Hz)	2.3 V			
DC Voltage (Measuring)	100.0 mV	25 uV	CAL/HVTL-WI-17	Electrical Measuring Device (6 ½ Digital Multimeter) "FLUKE 8846A"	P
	1.0 V	3.1 uV			
	10.0 V	16 uV			
	100.0 V	0.7 mV			
	1.0 kV	0.6 V			
AC Voltage (Measuring)	100.0 mV (3 Hz to 5 Hz)	35 uV	CAL/HVTL-WI-17	Electrical Measuring Device (6 ½ Digital Multimeter) "FLUKE 8846A"	P
	100.0 mV (5 Hz to 10 Hz)	54 uV			
	100.0 mV (10 Hz to 20 kHz)	0.6 mV			
	100.0 mV (20 kHz to 50 kHz)	11 uV			
	100.0 mV (100 kHz to 300 kHz)	21 uV			
	1.0 V (3 Hz to 5 Hz)	0.3 mV			
	1.0 V (5 Hz to 10 Hz)	36 uV			
	1.0 V (10 Hz to 20 kHz)	37 uV			
1.0 V (20 kHz to 50 kHz)	6.2 uV				



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	1.0 V (100 kHz to 300 kHz)	39 uV		Electrical Measuring Device (6 ½ Digital Multimeter) "FLUKE 8846A"	
	10.0 V (3 Hz to 5 Hz)	1 mV			
	10.0 V (5 Hz to 10 Hz)	0.5 mV			
	10.0 V (10 Hz to 20 kHz)	67 mV			
	10.0 V (20 kHz to 50 kHz)	18 mV			
	10.0 V (100 kHz to 300 kHz)	36 mV			
	100.0 V (3 Hz to 5 Hz)	11 mV			
	100.0 V (5 Hz to 10 Hz)	49 mV			
	100.0 V (10 Hz to 20 kHz)	73 mV			
	100.0 V (20 kHz to 50 kHz)	35 mV			
	100.0 V (100 kHz to 300 kHz)	40 mV			
	1000.0 V (3 Hz to 5 Hz)	70 mV			
	1000.0 V (5 Hz to 10 Hz)	0.25 mV			
	1000.0 V (10 Hz to 20 kHz)	0.11 V			
	1000.0 V (20 kHz to 50 kHz)	90 mV			
1000.0 V (100 kHz to 300 kHz)	55 mV				
DC Current (Measuring)	100 uA	14 nA	CAL/HVTL-WI-17	Electrical Measuring Device (6 ½ Digital Multimeter) "FLUKE 8846A"	P
	1 mA	0.02 uA			
	10 mA	12 uA			
	100 mA	0.25 mA			
	400 mA	21 uA			
	1 A	0.16 mA			
	3 A	0.23 mA			
	10 A	0.58 mA			
	20 A	4 mA			

Accreditation Withdrawn

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AC CURRENT (Measuring)	100.0 uA (10 Hz to 5 kHz)	41 nA	CAL/HVTL-WI-17	P
	100.0 uA (5 kHz to 10 kHz)	90 nA		
	1.0 mA (10 Hz to 5 kHz)	29 nA		
	1.0 mA (5 kHz to 10 kHz)	0.1 nA		
	10.0 mA (10 Hz to 5 kHz)	29 nA		
	10.0 mA (5 kHz to 10 kHz)	1 nA		
	100.0 mA (10 Hz to 5 kHz)	0.21 mA		
	100.0 mA (5 kHz to 10 kHz)	0.25 mA		
	400.0 mA (10 Hz to 1 kHz)	0.36 mA		
	400.0 mA (1 kHz to 10 kHz)	0.29 mA		
	1.0 A (10 Hz to 5 kHz)	0.26 mA		
	5.0 A (1 Hz to 5 kHz)	0.50 mA		
	5.0 A (5 kHz to 10 kHz)	1.2 mA		
	10.0 A (10 Hz to 5 kHz)	37 mA		
10.0 A (5 kHz to 10 kHz)	36 mA			

Accreditation Withdrawn

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**CALIBRATION**

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Resistance (Measuring)	10 Ω	0.5 mΩ	CAL/HVTL-WI-17	Electrical Measuring Device (6 ½ Digital Multimeter) "FLUKE 8846A" & DC Current Shunt "Guldline, Model: 9211B"	P
	100 Ω	21 mΩ			
	1 kΩ	76 uΩ			
	10 kΩ	0.82 Ω			
	100 kΩ	0.82 Ω			
	1 MΩ	0.68 Ω			
	10 MΩ	85 Ω			
	100 MΩ	21 Ω			
	1 GΩ	16 MΩ			
	Capacitance (Measuring)	1.00 nF			
10 nF		0.15 nF			
100 nF		0.27 nF			
1 uF		0.24 nF			
10 uF		23 pF			
100 uF		2.4 pF			
1.00 mF		0.35 uF			
10 mF		37 uF			
100 mF		3.9 uF			
1.00 nF		1.1 mF			

\*: Put only 'P', 'S' or 'P and S'

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\*\*Calibration and Measurement Capability Uncertainty (CMC) is the smallest uncertainty of measurement 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. CMC's represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of  $k = 2$ . The actual measurement uncertainty of a specific calibration performed by the laboratory may be greater than the CMC due to the behavior of the customer's device and to influences from the circumstances of the specific calibration.

**Note:** the text in blue indicates the new scope of update in the addition of a method in this issue of the scope of accreditation.

# Accreditation Withdrawn

### Log of Suspended Scopes:

Measurand	Measuring Range	CMC Expressed as an Expanded Uncertainty ( $k = 2$ ) **	Method (standard/guide + internal procedure)	Type of Instrument or Material	Permanent lab (P) / Client-site (S) *	Date Suspended	Date Reinstated

### Log of Withdrawn Scopes:

Measurand	Measuring Range	CMC Expressed as an Expanded Uncertainty ( $k = 2$ ) **	Method (standard/guide + internal procedure)	Type of Instrument or Material	Permanent lab (P) / Client-site (S) *	Date Withdrawn

END

This conformity assessment body (CAB) is recorded as issuing GAC accredited certificates to organizations in the countries listed below. This list is current at the time of issue of this schedule.

United Arab Emirates	Bahrain	Saudi Arabia	Oman	Qatar	Kuwait	Yemen