

ROYAL JORDANIAN AIR FORCE



DIRECTORATE OF COMMUNICATIONS AND ELECTRONICS CALIBRATION LABORATORIES CAPABILITIES

Introduction

- Precision measurement equipment laboratories (PMEL) were designed built and equipped in accordance with the highest military standards to provide Jordanian armed forces with the most advanced calibration services.
- PMEL is capable of calibrating test measurement, and diagnostic equipment (TMDE) used in the following fields:
 - DC & LOW FREQUENCY.
 - RF & MICROWAVE.
 - PHYSICAL AND DIMENSIONAL.
 - ELECTRO OPTICAL.

TMDEs are calibrated in PMEL are as shown the below table.

- RJAF PMEL (calibration labs) is traceable to the national institute of standards and technology (NIST) through the United States air force (USAF) Primary standards lab (AFPSL) which is certified by (A2LA). RJAF PMEL complies with strict military standard through USAF calibration labs certification program (AFMETCAL) that complies to ISO 17025 guidelines and other strict military standards. RJAF PMEL is accredited internationally for ISO 17025 through JAS (Jordan accreditation system).
- Client Responsibilities :
 - Client should indicate in the receipt Form if they have any specific points needed in the calibration and provide a specific calibration procedure to meet their requirements otherwise RJAF PMEL will calibrate and return according to RJAF procedures and capability.
 - Its client's responsibility to review the calibration certificate and decide if it meets their application.
 - Its client's responsibility to send the items for calibration with technically qualified personnel to sign the receipt form.
 - RJAF PMEL recommended interval is only a recommendation and it's the client's responsibility to decrease or increase this interval to meet their technical requirements and type of use according to a statistically derived interval and TMDE calibration history.
 - It's the client's responsibility to review the calibration certificate and see if it fits their technical application requirements.

CALIBRATION REQUIREMENTS

- Calibration is provided only if any of the following documents and the standards recommended by these documents are available:
 - Equipment calibration procedure
 - Equipment maintenance technical manual.
 - Commercial publications or commercial data.

TMDE CLASSIFICATION

- Classification of equipment is based upon:
 - TMDE price.
 - Standards used for calibration and over heads.
 - Time taken (man-hour) to calibrate the TMDE.

CALIBRATION COST

- Calibration cost in laboratories is shown in table 2.
- $CALIBRATION\ COST\ ON\ USER\ SITE = (N * H * 62.5) + T$
 - N = NUMBER OF TECHNICIANS
 - H = WORKING HOURS (يبدأ حساب ساعات العمل في الموقع من لحظة مغادرة المختبر ولحين العودة)
 - 62.5 = RATE OF ONE MAN HOUR IN JD .
 - T = TRANSPORTATION (WHICH EQUALS 100 J.D)

Table 1

TMDE THAT CAN BE CALIBRATED IN PMEL

#	INSTRUMENTS	CLASS
1	AIR DATA	G
2	AMMETER	A
3	ANGLE RULERS	A
4	APU TESTER	B
5	ATTENUATORS	A
6	BALANCES	D
7	BAR THERMOMETERS	B
8	BATT CHARGER	D
9	BATTERY CAPACITY	D
10	BORE GAUGES	C
11	CALIPERS	B
12	CHECK & FILL UNIT	B
13	CLAMP METERS	B
14	CLINOMETER	B
15	COD REACTOR	B
16	DECADE CAPACITANCE	B
17	DECADE INDUCTANCE	B
18	DECADE RESISTOR	B
19	DEPTH GAUGES	B
20	DIAL INDICATOR	C
21	DIGITAL CONDUCTIVITY	B

22	DIGITAL MULTIMETERS	C
23	DIGITAL THERMOMETERS	B
24	DIGITAL TURBINE	D
25	DISTORTION ANALYZERS	D
26	DISTORTION METERS	D
27	DOWN CONVERTERS	F
28	DUPPLER GENERATOR	D
29	DYNAMOMETER	B
30	EDDY CURRENT TESTER	C
31	FILLER GAUGES	C
32	FLOW METER	B
33	FORCE GAGE	B
34	FREQUENCY COUNTERS	E
35	FUEL TESTER	C
36	FUNCTION GENERATORS	D
37	GAS FLOW METERS	B
38	GAUGE BLOCK (EACH ONE)	A
39	HEIGHT COMPARATOR	B
40	HUDRA DATA LOGGER	H
41	HUMIDITY TEMP. INDICATOR	B
42	HYDROMETERS	C
43	IGNITER TESTER	B
44	INFLATOR KIT	A
45	INSULATION TESTER	B

46	JETCAL	C
47	LCR METER	B
48	LEVEL	D
49	LIGHTMETER	B
50	LOAD BANK	C
51	LOAD CELL	C
52	LOAD CELLS	C
53	LOOP CONTROLLER	B
54	MANOMETERS	B
55	MEASURING TAPE	A
56	MEASURING WHEEL	B
57	MECHANICAL FORCE GAUGES	B
58	MEG OHM TESTER	B
59	MEGGER	B
60	METAL METERS	A
61	MICRO OHM TESTERS	C
62	MICROMETERS	B
63	MILLIVOLT CALIBRATOR	C
64	MW FREQUENCY COUNTERS	E
65	MW POWER METERS	B
66	MW SIGNAL GENERATORS	G
67	OHMMETER	B
68	OIL BATH	H
69	OSCILLOSCOPES	D

70	OVENS	D
71	PAINT TEST EQUIPMENT	B
72	PAPER CUTTER	A
73	PEAK POWER METERS	B
74	PH METERS	A
75	PITOT STATIC TESTER	C
76	POCKET STROPE	B
77	POWER SENSORS	B
78	POWER SUPPLIES	B
79	PRESSURE CALIBRATOR	D
80	PRESSURE CALIBRATOR	D
81	PRESSURE GAUGES	A
82	PRESSURE REGULATORS	B
83	PROGRAMMABLE WAVEFORME	F
84	PROTRACTOR	C
85	PUSHPULL GAUGES	B
86	RAMP TEST SET	G
87	RIGHT ANGLE	A
88	RINGING BAR	B
89	RODS (EACH ONE)	A
90	SCOPE METER	D
91	SIGNAL GENERATORS	D
92	SITE METER	D
93	SOUND METER	B

94	SPECTRUM ANALYZERS	G
95	SPIRIT LEVEL	B
96	SPRING TESTERS	B
97	SQUARE STEEL SAMPLE	B
98	STABILATOR TEST SET	D
99	STATIC DISCHARGER	B
100	STD VOLTAGE CALIBRATORS	H
101	STEEL RULER	A
102	STOP WATCH	A
103	STROBOSCOPE	D
104	SWEEP GENERATORS	E
105	TACHOMETER	B
106	TELEPHONE ANALYZERS	D
107	TEMP BATH DRY	D
108	TEMP CALIBRATOR	H
109	TEMP CONTROLLER	D
110	TENSILE METER	C
111	TENSIOMETERS	C
112	TEST OSCILLATORS	D
113	TEST UNIT	B
114	THEODOLITES	G
115	THERMISTOR MOUNT	B
116	THERMOCOUPLE	C
117	THERMOHYGRO METER	B

118	THERMOSTAT	B
119	THICKNESS GAUGES	B
120	TIMER	A
121	TORQUE MULTIPLIERS	D
122	TORQUE WRENCH	B
123	TRANSPONDERS	H
124	VERNER HEIGHT GAUGES	B
125	VIBRATION PICKUPS	B
126	VIDEO IF UNIT	C
127	VISCOMETER	B
128	VOR TEST SET	H
129	WATER PATH	H
130	WATTMETERS	D
131	WAVE ANALYZERS	D
132	WAVE TEK TESTER	F
133	WEIGHING KET	D
134	WEIGHTS (EACH ONE)	A

Table 2

TEST INSTRUMENT CALIBRATION COST

#	CLASS	REQUESTED TURN AROUND TIME			
		2 DAYS (JD)	7 DAYS (JD)	14 DAYS (JD)	28 DAYS (JD)
1	A	75	50	38	32
2	B	125	100	75	63
3	C	188	150	113	94
4	D	250	200	150	125
5	E	313	250	188	157
6	F	375	300	225	188
7	G	500	400	300	250
8	H	625	500	375	313

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