

Accreditation of Test & Calibration Laboratories – Insight

Case Studies for improvements ...Case study 3 & 4 of 12- I.S.Prasad, Free-lancer& QMS.

Abstract:

Measurements are critical for the existence of life and Measurement Correctness or traceability is assured by calibration. Data without measurement Uncertainty is incomplete. Visualizing this, the world community has formed organizations as IAF, ILAC, and ISO as to support the objectives.

All these organizations have put tremendous efforts in formulation of standards for Quality Management systems such as ISO9000 series for manufacturing & services, ISO/IEC 17025 for Test & Calibration services & ISO/IEC 17011 for Assessment Bodies.

In order to facilitate universal acceptability of measurement data, product & services The ILAC has initiated MRA.

The Laboratories that provides Test & Calibration services shall be competent through compliance with the international standard ISO/IEC 17025 requirements to provide the right services to its clients. The laboratory evaluation Body – or Accreditation Body shall have dual competencies of ISO/IEC 17025 and 17011 requirements as meet the objectives as well as respectful identity among the Member countries.

The performance index of the Laboratory is the accreditation granted to it .It indicates the Laboratory capabilities and also the Technical evaluation skill set of the Accreditation Body.

This Paper mirrors the present state of Quality of Services- Both of Accreditation Body and of Laboratory in line with the phrase “As is the Accreditation Body so are the Laboratories” at par with “As is the king so are the people” since Laboratory CMCs or Capabilities are endorsed by the Accreditation Body.

The input for this analysis is from Open source data available from the respective web portal of the Accreditation Body. Continuous feedback for improvements have been given through publications, complaints and emails but have not resulted in Positive or corrective outcome due to inherent Inertia and bad habits die hard nature. It does not mean that the efforts stop, instead it continues till success, objective being “Do better & be competent in the International Scenario.”

Keywords:

Accreditation, CMC, ISO /IEC 17025, ISO/ IEC 17011, ILAC, APAC, IAF, UKAS, SAS. Test and Calibration Laboratories, Accreditation Body or AB

Introduction:

*Calibration itself is a measurement process that assigns values relative to reference standard. All measurements are subject to uncertainty and measurement result is complete only if accompanied by a statement of the associated uncertainty. In order to detect, eliminate or correct the bias in the user measurement system, the Measurement uncertainty must be lower than the bias during calibration activity (The **bias** - being the difference between the Unit Under Calibration (UUC) response to the Reference Input).*

The Laboratories shall demonstrate the technical competence for Test and calibration services to the Accreditation Body as it is not practicable to witness the capability demo in each and every instance by the customers.

This makes the Accreditation Body more accountable for its acts & actions of assessment but the reality is different as evidenced in these case studies. The focus appears to be making money rather than improving quality of living for reasons listed below.

- 1. ISO/IEC 17011 standard indicates that the accreditation cycle shall not exceeding 5 years which is respected by most of Accreditation Bodies, be it UKAS or Swiss Accreditation Services . Alternatively the easiest way of making money is to reduce the accreditation cycle to 2 years as indicated in these Accreditation Certificates.*
- 2. The Assessment is also not of professional as there are two CMCs – for single measurement named as source CMC and Measure CMC due to Poor or No measurement knowledge as it is mere equipment specification copied.*
- 3. Most of the laboratories that are accredited by this AB do not have the design capabilities - instead these laboratories purchase the equipment of Fluke / other reputed manufacturers and managed to have CMCs lower than the original Equipment Manufacturer who had been evaluated by A2LA or UKAS (analysis of the Accreditation certificates issued clearly indicates this - Through comparison of certificates)*

The technical competency of the Lab and the outcome of the entire system are at Risk as the Accreditation Body continue to encourage two different CMCs, One for Source and another for Measure. This makes the job easy for the people that go by the specifications and not by measurements.

If the above dual CMC methodology is adopted by an independent Accreditation Body or Agency it would have been winded up long back unless it is Governed or supported.

The AB and its hired auditors (Pre - requisite being Training by the AB through Training fee, Since fee is involved people tend to demand high returns with low efforts as witnessed in these case studies) continues to adopt the outdated methodology of copying Sourcing Equipment specifications as source CMC and Measuring Equipment Specification as Measure CMC as it is easier to follow than understanding (known devil is better than unknown god & Newton`s First Law of Motion)

The First highest loser in the entire game is the End customer that pays for services, the second highest loser is the Calibration or test service provider as he or she also pays for accreditation and the only gainer is the Accreditation Body. Profitability by giving this type of Accreditation for more labs, changing the accreditation cycle to 2 years, adopting easy practices, but not arriving at the truthfulness or the

objectives of the Quality Management system and so on... Ultimately it is the citizen that pays for the inefficiency unknowingly.

About the Author:

The Author, by nature is a Non-Comprising Quality & Measurement Professional- has overall three decades of Expertise - 2 decades & odd in 3rd party -ISO 17025 Test & calibration Laboratory of Government of India STQC Directorate , a decade & odd in Aero Space Product Design & Manufacturing Environment (AS9100) acknowledges the contributions from the open web resources and continuous to put efforts for a better tomorrow without any restrictions - is also accessible over isprasad100@gmail.com or isprasad200@gmail.com

Methodology adopted:

- 1. Data Collection from the Accreditation Body web- Being Open source data confidentiality issues doesn't rise.*
- 2. Merging of redundant data for ease of understanding (calibration Lab CC-3035 & Test Lab TC-6225 no way different from other calibration certificate of this AB)*
- 3. Re-organizing of the data without losing its identity – In this case, the serial Numbers are retained as per the original Accreditation Certificate.*
- 4. Redefining Calibration as Measurement of known Quantity - Case being all sourcing parameters like Voltage, current both AC and DC, Resistance etc.*
- 5. Analyzing the Inputs & Outputs and arriving at observations – observations are in color italics while original data is in black Non- italics.*
- 6. Template remains "AS IT IS" to focus on Improvements (Case study of CC-3035 & TC-6225) with Analysis & Arriving at what is not done with the factual data.*

In this Analysis, all stake holders are identified by the respective logos – as to have clarity of contributions – be it good or bad - Adoption of corrective measures to benefit the Industry & Institutions.

The objectives of these cases study / Analysis is:

- 1. To know what is happening around us...*
- 2. To arrive at the Right methodology of Lab Management & Assessment (ISO/IEC 17025 &17011)*
- 3. Be wise in Investment & returns from Global Quality Perspective*
- 4. To make the Third Party Assessment Professionally Competent , Transparent & Responsive .*
- 5. Reviewing/Cleaning of the Present system / Methodology,*
- 6. Self reliant in respect of knowledge of operations,*
- 7. Adoption of Accreditation cycle of 4 years respecting ISO/IEC 17011 standard – from the present cycle of 2 years as it is only profitable for the AB.*
- 8. Elimination of efforts that are of "No value addition" to Pass on the benefit to users.*

9. In simple words "If one honestly knows what is being delivered, the need for dependency on third party does not arise" – from the accreditation certificates it is clear that no one knows what is being delivered in the context of Source & Measure CMC and Application of Test Uncertainty Ratio.

10. Incorporation of actions to clean up As the Certificates issued have the same pattern or signature.

Risk Analysis & Assessment:

Continuation of MRA status in spite of visibility of poor performance further degrades the performance as visible at present. There have not been any improvements/corrective actions in spite of cascaded feedback. Such Certificates likely to question the Integrity of Entire ILAC / APAC / IAF Accreditation System/Program due to continued use of the respectful Logos in the issued Accreditation Certificates...

Earlier references can be found at URL(unfortunately no developments)

<https://www.ijser.org/researchpaper/Oscilloscope-Calibration-Laboratory-Accreditation-Assignment-of-Unrealistic-CMCs-CAPA.pdf>

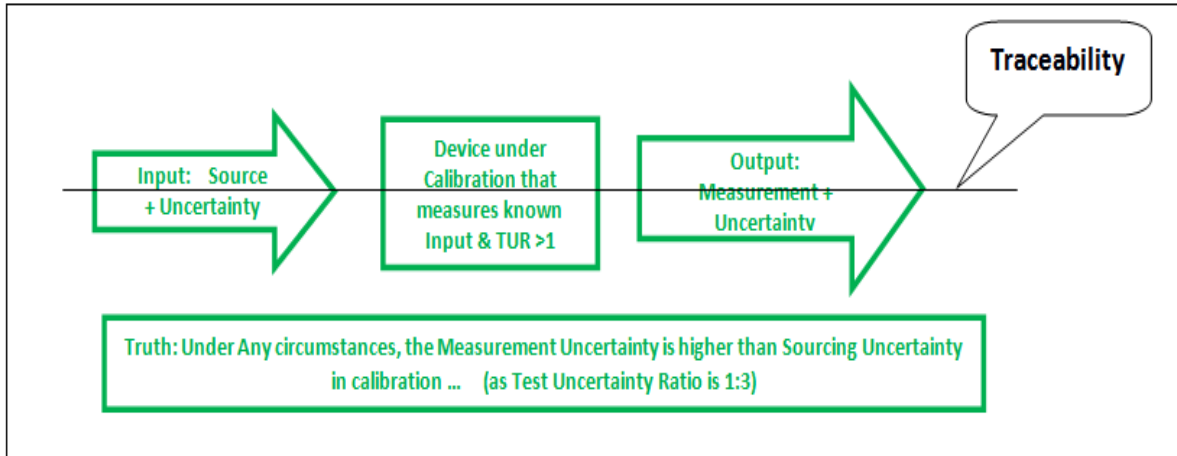
<https://www.ijser.org/researchpaper/Calibration-Laboratory-Assessment-Dynamic-Case-Studies-For-Betterment.pdf>

The serious and basic Major Non conformances are (common for all Certificates)

- **Indicating CMC (Internationally accepted as non -negative number) as \pm (represents No- Knowledge or respect to Standard)**
- **During the Assessment "Lab is required to measure traceable Input of known uncertainty to arrive at CMC. Truth is "THE OUTPUT or MEASUREMENT UNCERTAINTY is NEVER LOWER THAN INPUT or SOURCING UNCERTAINTY.**
- **Analysis of "CC-3035" (or even the other certificates of this AB) & TC-6225 indicates "No truth" in Assessment / Accreditation as the "Output Uncertainty <Input Uncertainty."**

Calibration concept & Accreditation:

Understanding & Differentiation- Correct &Incorrect



<i>Right Calibration</i>		<i>Wrong Calibration</i>	
✓	<i>Input source uncertainty</i> <<	✗	<i>Input source uncertainty</i> >>
	<i>Test Uncertainty Ratio</i> >1		<i>Test Uncertainty Ratio -not known</i>
	<i>Output measurement Uncertainty</i> > <i>Input Uncertainty</i>		<i>Output measurement Uncertainty</i> < <i>Input Uncertainty</i>

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National Accreditation Board for Testing and Calibration Laboratories
(A Constituent Board of Quality Council of India)



SCOPE OF ACCREDITATION

Laboratory Name: ELECTRONICS LAB, BHARAT DYNAMICS LIMITED, BHANUR UNIT, DT. SANGAREDDY, HYDERABAD, TELANGANA, INDIA

Accreditation Standard: ISO/IEC 17025:2017. Certificate Number: CC-3035. Validity: 14/08/2019 to 13/08/2021

Extract of certificate: (Sl.No.s are same as that of original Certificate- to explores the truth)

S.No	Discipline / Group	Quantity Measured/ Instrument	Range / Frequency	* Calibration Measurement Capability(±)	Remarks
1	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC Current at 1 kHz	10 mA to 10 A	0.00026% to 0.011%	Using Reference Digital Multimeter 8508A by direct method
2		AC Current at 10 kHz	10 mA to 1 A	0.00028% to 0.00022%	
3		AC Current at 300 Hz	100 µA to 10 A	0.0017% to 0.00088%	
4		AC Current at 50 Hz	100 µA to 100 mA	0.055% to 0.0018%	
5		100 mA to 19.95 A	0.0018% to 0.007%		
14	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC Current at 10 kHz	329 mA to 1 A	0.27% to 3.46%	Using Multi Product Calibrator 5522A by direct method
15		AC Current at 1kHz	33 µA	0.50%	
16		AC Current at 45 Hz	1 A to 19.9 A	0.07% to 0.17%	
17			33 µA to 1 A	0.5% to 0.07%	
18		AC Current at 5 k Hz	329 mA to 19.9 A	0.14% to 3.49%	

1. CMC of 0.00026% for AC I of 10 mA is FALSE as Accuracy of Fluke 8508A is 0.035%

AC Current	Input /Source Uncertainty	Output/Measure Uncertainty	Factual data	Root causes Analysis...
1A@10kHz	3.46%	0.00022%	False CMC	A) No measurement knowledge. B) Not understanding the Equipment specifications.
19.9A@50Hz	0.17%	0.007%		
10ma at 1kHz		0.00026%	False data	C) Since <u>ACCREDITATION</u> for Lab & <u>INCOME</u> for AB is <u>REQUIRED</u> - No checks are done...
1 A at 10kHz		0.0002%		

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S.No	Discipline / Group	Quantity Measured/ Instrument	Range / Frequency	* Calibration Measurement Capability(±)	Remarks
7	ELECTRO- TECHNICAL- ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC Voltage at 10 kHz	10 V to 100 V	0.012% to 0.015%	Using Reference Digital Multimeter 8508A by direct method
8			100 mV to 10 V	0.018% to 0.012%	
19	ELECTRO- TECHNICAL- ALTERNATING CURRENT (< 1 GHZ)(Source)	AC Voltage at 10 kHz	1 mV to 30 V	0.73% to 0.020%	Using Multi Product Calibrator 5522A by direct method
20			30 V to 1000 V	0.020% to 0.036%	

AC Current	Input /Source Uncertainty	Output/Measure Uncertainty	Factual data	Root causes Analysis...
10V	0.020%	0.012%	False CMC	A) No measurement knowledge. B) Not understanding the Equipment specifications. C) Since <u>ACCREDITATION</u> for Lab & <u>INCOME</u> for AB is <u>REQUIRED</u> - No checks are done...
30V	0.020%	<0.015%		
100V	>0.020%	0.015%		
1000V	0.036%	No measurement		

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S.No	Discipline / Group	Quantity Measured/ Instrument	Range / Frequency	* Calibration Measurement Capability(±)	Remarks
9	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC Voltage at 100 kHz	100 mV to 100 V	0.1% to 0.081%	Using Reference Digital Multimeter 8508A by direct method
10		AC Voltage at 50 Hz	10 V to 100 V	0.012% to 0.019%	
11			100 mV to 10 V	0.019% to 0.012%	
12		AC Voltage at 500kHz	1 V	3.46%	

21	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC Voltage at 100 kHz	300 mV to 30 V	0.11%	Using Multi Product Calibrator 5522A by direct method
22		AC Voltage at 45 Hz	1 mV to 300 mV	0.8% to 0.038%	
23			30 V to 1000 V	0.037% to 0.036%	
24			300 mV to 30 V	0.038% to 0.037%	
25		AC Voltage at 500 kHz	300 mV	0.26%	

AC Voltage	Input /Source Uncertainty	Output /Measure Uncertainty	Factual data	Root causes Analysis...
@100kHz ,30V	0.11%	0.081%	False CMC	A) No measurement knowledge. B) Not understanding the Equipment specifications. C) Since ACCREDITATION for Lab & INCOME for AB is REQUIRED - No checks are done...
@50Hz 100V	0.036%	0.019%		
@50Hz 10V	0.038%	0.012%		

Complete Failures of Quality Management System” – is seen here.

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S.No	Discipline / Group	Quantity Measured/ Instrument	Range / Frequency	* Calibration Measurement Capability(±)	Remarks
26	ELECTRO-TECHNICAL-ALTERNATINGCURRENT (< 1 GHZ) (Measure)	DC Current	100 µA to 100 mA	0.0021% to 0.005%	Using Reference Digital Multimeter 8508A by direct method
27			100 mA to 10 A	0.005% to 0.049%	

32	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ)(Source)	DC Current	1 µA to 1.9 mA	2.33% to 0.017%	Using Multi Product Calibrator 5522A by direct method
33			1.9 mA to 10.9 A	0.017% to 0.065%	
34			10.9 A to 19.9 A	0.065% to 0.12%	

DC Current	Input /Source Uncertainty	Output / Measure Uncertainty	Factual data	Root causes Analysis...
10A	0.065%	≥ 0.049%	False CMC	A) No measurement knowledge. B) Not understanding the Equipment specifications. C) Since <u>ACCREDITATION</u> for Lab & <u>INCOME</u> for AB is <u>REQUIRED</u> - No checks are done...
≤1.9mA	0.017%	0.005%		

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S.No	Discipline / Group	Quantity Measured/ Instrument	Range / Frequency	* Calibration Measurement Capability(±)	Remarks
28	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	DC Voltage	10 V to 1000 V	0.00048% to 0.00073%	Using Reference Digital Multimeter 8508A by direct method
29			100 mV to 10 V	0.00068% to 0.00048%	

35	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	1 to 329	0.12 to 0.0027	Using Multi Product Calibrator 5522A by direct method
36			1 V to 50 V	0.0016% to 0.0026%	
37			329 mV to 1 V	0.0027% to 0.0016%	
38			50 V to 1000 V	0.0026% to 0.0024%	

DC Voltage	Input /Source Uncertainty	Output /Measure Uncertainty	Factual data	Root causes Analysis...
100mV	Not known	0.00068%	False CMC	A) No measurement knowledge. B) Not understanding the Equipment specifications. C) Since <u>ACCREDITATION</u> for Lab & <u>INCOME</u> for AB is <u>REQUIRED</u> - No checks are done...
1V	0.0016%	<0.00068%		
10V	0.0026%	0.00048%		
50V	0.0026%	<0.00073%		
1000V	0.0024%	0.00073%		

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Extract of certificate: (Sl.No.s are same as that of original Certificate- to explore the truth)

S.No	Discipline / Group	Quantity Measured/ Instrument	Range / Frequency	* Calibration Measurement Capability(±)	Remarks	
40	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	Resistance	1 kOhm to 100 MOhm	0.0057% to 0.079%	Using Multi Product Calibrator 5522A by direct method	
43			1 Ohm to 100 Ohm	1.16% to 0.021%		
46			100 Ohm to 1 kOhm	0.021% to 0.0057%		
41				1 MOhm to 100 MOhm	0.012% to 0.038%	Using Decade Resistance Box 1433- 41 by direct method
42			1 Ohm to 10 Ohm	0.25% to 0.035%		
45			10 Ohm to 100 Ohm	0.035% to 0.014%		
47			100 Ohm to 1 MOhm	0.014% to 0.012%		

30	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	Resistance	1 Ohm to 100 Ohm	0.014% to 0.00094%	Using Reference Digital Multimeter 8508A by direct method
31			100 Ohm to 1 GOhm	0.00094% to 0.27%	

Resistance (ohm)	Input /Source Uncertainty	Output /Measure Uncertainty	Factual data	Root causes Analysis...
1	1.16% & 0.25%	0.014%	False CMC	A) No measurement knowledge. B) Not understanding the Equipment specifications. C) Since <u>ACCREDITATION</u> for Lab & <u>INCOME</u> for AB is <u>REQUIRED</u> - No checks are done...
100	0.021%	0.00094%		

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S.No	Discipline / Group	Quantity Measured/ Instrument	Range / Frequency	* Calibration Measurement Capability(±)	Remarks
48	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	Oscilloscope, Amplitude DC Voltage at 1 MOhm Load	5 mV to 6.6 V	1.76% to 0.059%	Using Multi Product Calibrator 5522A by direct method
49			6.6 V to 70.5 V	0.059% to 0.29%	
50		Bandwidth/Flatness Relative to 50kHz	480 MHz	8.12%	
51		Time Marker	10 ms to 50 ms	0.058% to 0.014%	
52			100 ns to 10 ms	0.0066% to 0.058%	
53			2 ns to 100 ns	0.57% to 0.0066%	
54			50 ms to 5 s	0.014% to 0.58%	
55		Amplitude AC Voltage(1kHz) at 1 MOhm Load	500 mV to 11 V	0.2% to 0.36%	

* CMCs represent expanded uncertainties expressed at approximately the 95% level of confidence, using a coverage factor of k = 2.

1. *No measurements made with oscilloscope & without measurements– **CMC** is given!*
2. *Equipment specifications are copied as CMC.*
3. *CMC of 0.059% for amplitude measurements with oscilloscope- is Impossible, same is the case for time measurements*
4. *No one Questions – has resulted in this type of Accreditation Certificate*
5. *Past Reference being*

<https://www.ijser.org/researchpaper/Oscilloscope-Calibration-Laboratory-Accreditation-Assignment-of-Unrealistic-CMCs-CAPA.pdf> -

Shared with AB and world over... But No Corrective Actions

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Case study -4 :Accreditation certificate TC-6225, *Factual data in red italics*

Laboratory: Electronic Test & Development Centre,, Bangalore, Karnataka

Accreditation Standard: ISO/IEC 17025:2005. Certificate Number: TC-6225.

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Validity: 22.10.2018to21.10.2020 Extended to 21/10/2021

Last Amended on01.10.2020

Sl.No.	Materials or Products tested	Component, parameter or characteristic tested/ Specific Test Performed/ Tests or type of tests performed	Test Method Specification against which tests are performed and/or the techniques/ equipment used
II.	ENVIRONMENTAL TEST FACILITY		
1.Electrical/Electronic components/ Equipments			
<p><u>Accreditation without witnessing -</u></p> <p><i>Neither the Laboratory, Nor the Auditor nor the Accreditation Body knows the specific test number applicable for each test & its severity as such the entire document numbers are given .</i></p> <p><i>Nor the Laboratory has got the capability to carry out Tests as per MIL 810</i></p> <p><u>Factual data is that</u></p> <p><i>JSS50101 (146 pages,24 tests)</i></p> <p><i>JSS 55555 (342 pages,31 main tests + more)</i></p> <p><i>MIL-STD-202 (193 pages, 41 tests)</i></p> <p><i>MIL 810G (804 pages,>400 tests)</i></p>		Cold (Low Temperature)	IS 9000 (Part II/Sec 1 to 4) 2013 IEC 68-2-1:2007 JSS 50101:1996 & JSS 55555:2012 MIL-STD 202G:2002 MIL 810G:2014 QM 333/Issue-2010
		Dry Heat (High Temperature)	IS 9000:(Part III/Sec 1 to 5) 2010, IEC-68-2-2:2007 QM 333/Issue-2010
		Temperature cyclic	IS 9000 (Part 14):2015 IEC 68-2-14: NB:2009 JSS 50101:1996 JSS 55555:2012 MIL-STD 202G:2002 MIL 810G:2014 QM 333/Issue-2010 QM301:2002
		Temperature Shock	IS 9000 (Pt 14):2015 IEC 68-2-14-NC:2009 JSS 50101:1996 JSS 55555:2012 MIL-STD 202G:2002 MIL 810G:2014 QM 333/Issue-2010

<p><i>in simple words,</i></p> <p>Just PAY & GET Accreditation Certificate</p> <p><i>All the referred documents available /enclosed</i></p>	<p>Damp Heat Steady State</p>	<p>IS 9000 (Pt IV):2015 IEC 68-2-78:2012 , JSS 50101:1996 JSS 55555:2012</p>
	<p>Damp Heat Cyclic</p>	<p>IS 9000 (Pt V):2010 IEC 68-2-30:2005 MIL-STD 202G:2002</p>

Laboratory: Electronics Test & Development Centre,, Bangalore, Karnataka

Accreditation Standard: ISO/IEC 17025:2005 **Certificate Number: TC-6225.**

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Validity: **22.10.2018to21.10.2020** Extended to **21/10/2021**

Last Amended on**01.10.2020**

Sl.No.	Materials or Products tested	Component, parameter or characteristic tested/ Specific Test Performed/ Tests or type of tests performed	Test Method Specification against which tests are performed and/or the techniques/ equipment used
<p>The lab cannot do tests in excess of 12g as declared in the mail below, but Accreditation Body GAVE accreditation for entire MIL 202 going up to 80g as both are not aware of the technical capabilities & MIL 202 document.</p> <p><u>Compromised Assessment</u></p> <p>(below Email communication from the Lab indicates the truth & limitations ...)</p> <hr/> <p>Mail from</p> <p>etdcbg.stqc@stqc.gov.in</p> <p>To: isprasad100@gmail.com Tue, Jun 16, 2020 at 3:24 PM –</p> <p>Dear Sir,As per your query, the Highest 'g' level can go up to 12g, 5 to 2000Hz only. Regards-</p>		Damp Heat Cyclic Continued/-	MIL 810G:2014 QM 333/Issue-2010
		Salt spray (Corrosion)	IS 9000 (Pt XI):2010 JSS 50101:1996 JSS 55555:2012 MIL-STD 202G:2002MIL 810G:2014 QM 333/Issue-2010 ASTM B117
		Dust	IS 9000 (Pt XII):2010 JSS 50101:1996 JSS 55555:2012 QM 333/Issue-2010
		Composite Temperature Humidity	IS 900 (Pt VI):2010 JSS 50101:1996 JSS 55555:2012
		Vibration (Sinusoidal)	IS 9000(Pt VIII):2015 IEC 68-2-6:2007 JSS 50101:1996 JSS 55555:2012

<p>Krishna</p> <hr/> <p>The Author rendered services at this Lab (Span of 22years) till June 2006 and is well aware of the Facility limitations & Functionalities of various Organizations /Bodies...</p>		<p>MIL-STD 202G:2002 MIL 810G:2014 QM 333/Issue-2010</p>
	<p>Bump</p>	<p>IS 9000 (Pt VII/sec 2):2013 IEC 68-2-29: JSS 50101:1996 JSS 5555:2012 QM 333/Issue-2010</p>

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