

External Quality Assurance (EQA) of G6PD Quantitative Test

Survey No. : RH2015-10  
Sample sent : [22 set](#)

Sample sent on : 2015/09/28  
Results reported (%) : 22 (100%)

Reporting deadline : 2015/10/05

1. [Summary report on this EQA survey](#)
2. [The distribution of G6PD reported in this survey](#)
3. [The distribution of Hb reported in this survey](#)
4. [Long term observation of inter laboratory CV vs. surveys](#)
5. [Long term observation of inter laboratory CV vs. G6PD activities](#)
6. [Deviation graph for individual laboratory](#)

Referral Hosp. G6PD and Hemoglobin(Hb) Quantitative Test Results

Lab	Referral Hosp.	Report (day)	Sample 1				Sample 2				Sample 3				Hb 1	Hb 2	Hb 3
			(U/gHb)	D%	z score	SDI	(U/gHb)	D%	z score	SDI	(U/gHb)	D%	z score	SDI	(g/dL)	(g/dL)	(g/dL)
F02	F02	4	5.9	-3.3%	-0.5	-0.5	11.4	-0.9%	-0.1	-0.3	2.6	-3.7%	-0.5	-0.5	2.2	2.2	2.0
F03	F03	4	5.8	-4.9%	-0.7	-0.7	10.9	-5.2%	-0.7	-0.8	2.6	-3.7%	-0.5	-0.5	2.3	2.2	2.2
F04	F04	7	6.2	1.6%	0.2	0.0	11.4	-0.9%	-0.1	-0.3	2.5	-7.4%	-1.1	-0.8	2.5	2.3	2.2
F05	F05	8	6.0	-1.6%	-0.2	-0.3	13.5	17.4%	2.5	1.8	3.2	18.5%	2.6	1.0	2.3	2.0	2.1
F06	F06	3	5.9	-3.3%	-0.5	-0.5	10.6	-7.8%	-1.1	-1.1	2.5	-7.4%	-1.1	-0.8	2.3	2.2	2.1
F07	F07	7	6.4	4.9%	0.7	0.3	11.8	2.6%	0.4	0.1	3.1	14.8%	2.1	0.8	2.3	2.2	2.2
F08	F08	6	6.5	6.6%	0.9	0.5	12.7	10.4%	1.5	1.0	3.0	11.1%	1.6	0.5	2.6	2.4	2.4
F09	F09	2	5.8	-4.9%	-0.7	-0.7	10.9	-5.2%	-0.7	-0.8	2.5	-7.4%	-1.1	-0.8	2.3	2.2	2.1
F10	F10	2	5.7	-6.6%	-0.9	-0.8	11.0	-4.3%	-0.6	-0.7	2.7	0.0%	0.0	-0.2	2.5	2.4	2.3
F11	F11	2	6.5	6.6%	0.9	0.5	12.1	5.2%	0.7	0.4	3.1	14.8%	2.1	0.8	2.4	2.2	2.1
F12	F12	5	7.9	29.5%	4.2	2.8	14.6	27.0%	3.9	2.9	3.6	33.3%	4.8	2.0	2.6	2.4	2.3
F13	F13	3	6.6	8.2%	1.2	0.7	11.6	0.9%	0.1	-0.1	3.1	14.8%	2.1	0.8	2.3	2.2	2.0
F14	F14	7	5.0	-18.0%	-2.6	-2.0	11.3	-1.7%	-0.2	-0.4	2.1	-22.2%	-3.2	-1.8	2.3	2.2	2.2
F15	F15	4	6.0	-1.6%	-0.2	-0.3	11.4	-0.9%	-0.1	-0.3	2.6	-3.7%	-0.5	-0.5	2.4	2.3	2.3
F16	F16	4	6.9	13.1%	1.9	1.2	13.1	13.9%	2.0	1.4	3.1	14.8%	2.1	0.8	2.5	2.2	2.2
F17	F17	7	7.1	16.4%	2.3	1.5	13.2	14.8%	2.1	1.5	3.3	22.2%	3.2	1.3	2.3	2.1	2.0
F18	F18	3	6.1	0.0%	0.0	-0.2	11.8	2.6%	0.4	0.1	2.7	0.0%	0.0	-0.2	2.0	1.9	1.8
F19	F19	4	6.4	4.9%	0.7	0.3	11.8	2.6%	0.4	0.1	3.0	11.1%	1.6	0.5	2.3	2.2	2.2
F20	F20	7	5.8	-4.9%	-0.7	-0.7	11.1	-3.5%	-0.5	-0.6	2.6	-3.7%	-0.5	-0.5	2.5	2.3	2.2
F21	F21	7	6.8	11.5%	1.6	1.0	12.3	7.0%	1.0	0.6	3.2	18.5%	2.6	1.0	2.4	2.7	2.2
F22	F22	5	6.1	0.0%	0.0	-0.2	11.0	-4.3%	-0.6	-0.7	2.5	-7.4%	-1.1	-0.8	2.4	2.3	2.2
F23	F23	4	4.3	-29.5%	-4.2	-3.2	10.6	-7.8%	-1.1	-1.1	2.0	-25.9%	-3.7	-2.0	2.7	2.4	2.4
Total participating laboratories = 22																	
Xa (Median)	-	4	6.1				11.5				2.7				2.4	2.2	2.2
σ <sub>p</sub>	-	-	0.427				0.805				0.189				-	-	-
Range	-	2-8	4.3-7.9				10.6-14.6				2.0-3.6				2.0-2.7	1.9-2.7	1.8-2.4
n	-	-	22				22				22				22	22	22
Mean	-	-	6.2				11.7				2.8				2.4	2.2	2.2
S.D.	-	-	0.6				1.0				0.4				0.1	0.1	0.1
C.V.	-	-	9.7%				8.5%				14.3%				4.2%	4.5%	4.5%
Note:																	
1. D% = [ ( X - Xa ) / Xa ] x 100% ; X = Your Results , Xa = Assigned value																	
2. z score = D / σ <sub>p</sub> ; D = X - Xa, σ <sub>p</sub> = SD for proficiency assessment																	
3. SDI = ( X - Mean ) / SD ; SD = standard deviation of peer group																	
4. The assigned value ( Xa ) is the <b>median</b> of all the results reported of this EQA sample																	
5. SD for proficiency assessment ( σ <sub>p</sub> ) = 7% x Xa ; but while Xa < 2.9 U/gHb, σ <sub>p</sub> = 0.2																	
6. Robust results ( Mean and SD ) were calculated by Algorithm A according to ISO 13528:2005																	
7. Acceptable :  z  <= 2; Caution : 2 <  z  <= 3; Unsatisfactory :  z  > 3																	
8. Maximum Allowable Deviation ( MAD ) = 3 x (σ <sub>p</sub> / Xa ) x 100%																	

Ordered by Referral Hosp.



Newborn Screening QA Program  
[Preventive Medicine Foundation](#)



[Newborn Screening Reference Center](#)  
[National Institutes of Health](#)



[University of the Philippines](#)

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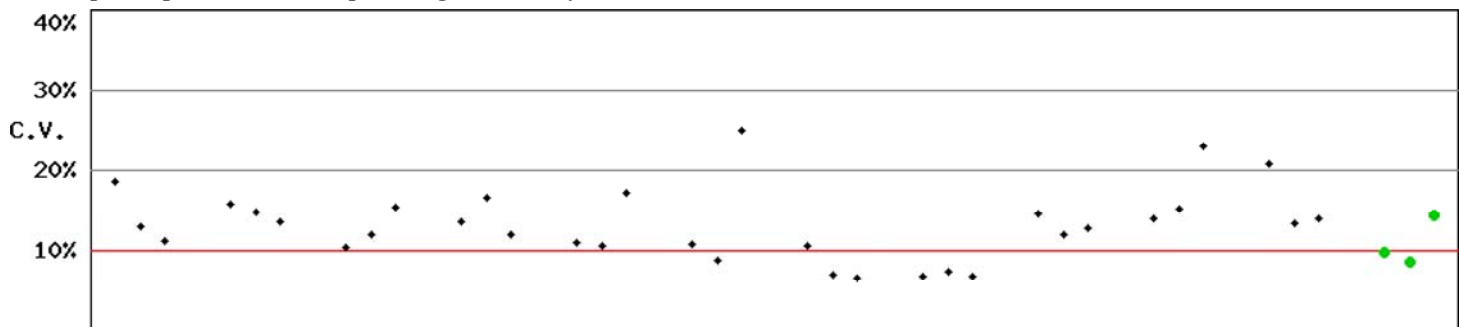
625 Pedro Gil St., Ermita, Manila 1000, Philippines

Fax : + 632-522-4396; [info@newbornscreening.ph](mailto:info@newbornscreening.ph)

# Long Term Observation of Blood G6PD Quantitative Test QA Survey Results

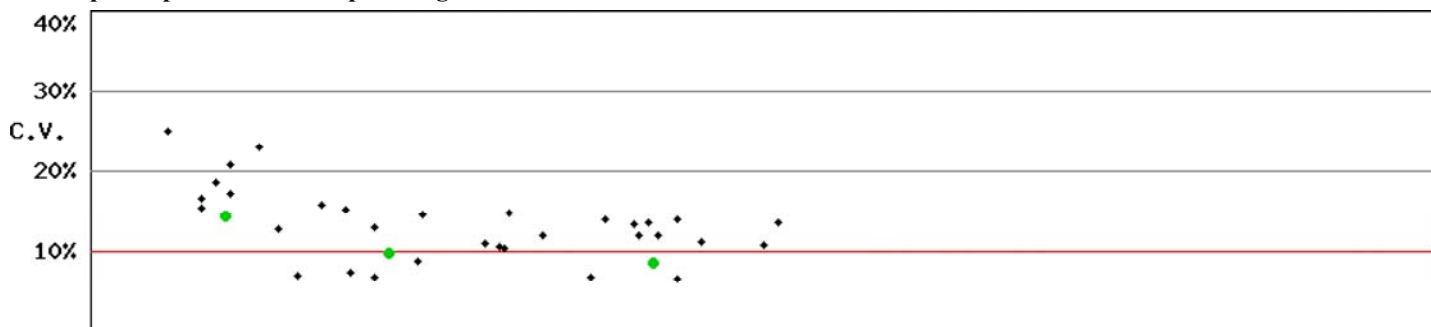
Survey No : RH2015-10 (in green ●)

- Total participants' CV result plotted against surveys



BatchNo RH2013-05 RH2013-07 RH2013-09 RH2013-11 RH2014-01 RH2014-04 RH2014-07 RH2014-10 RH2015-01 RH2015-04 RH2015-07 RH2015-10  
Fig RH-2.1

- Total participants' CV result plotted against G6PD activities



G6PD (U/gHb) 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27  
n: 36 Median of CV: 12.9% Mean of CV: 13.0% SD of CV: 4.3% Range of CV: 6.6%-25.0% (date: RH2013-05 to RH2015-10)  
Fig RH-2.2

\* Mean and SD are calculated by Robust method according to ISO 13528:2005 since 2014

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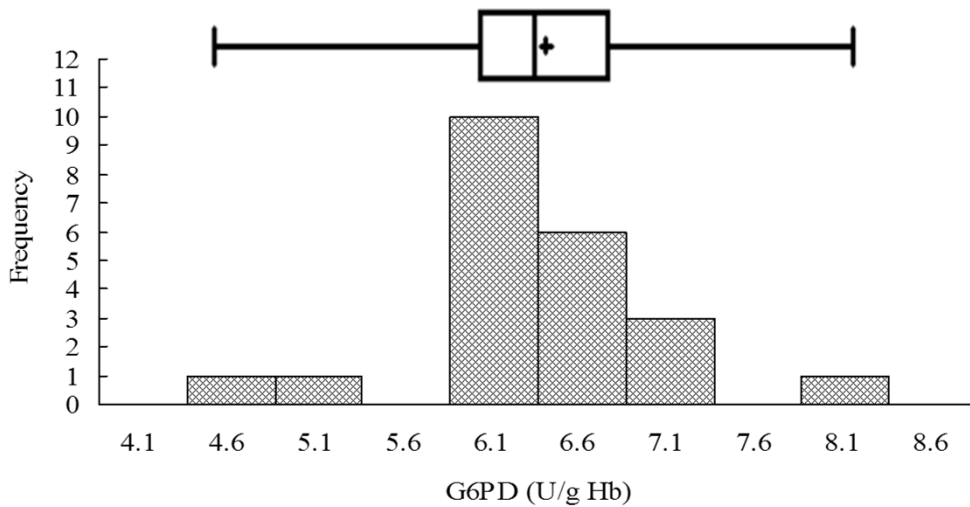
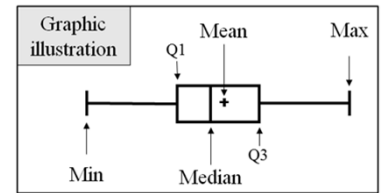
# RH2015-10 External Quality Assurance -G6PD

Survey No. : RH2015-10

Sample sent on : 2015/09/28

Reporting deadline : 2015/10/05

Results reported (%) : 100%



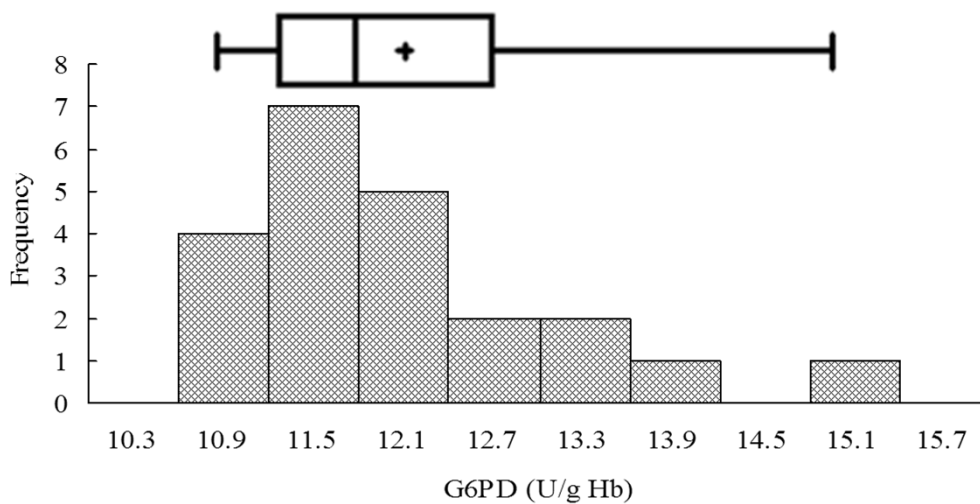
## Sample 1

**Median = 6.1 (n = 22)**

**Mean\* = 6.2 (n = 22)**

**SD\* = 0.6**

**CV = 9.7%**



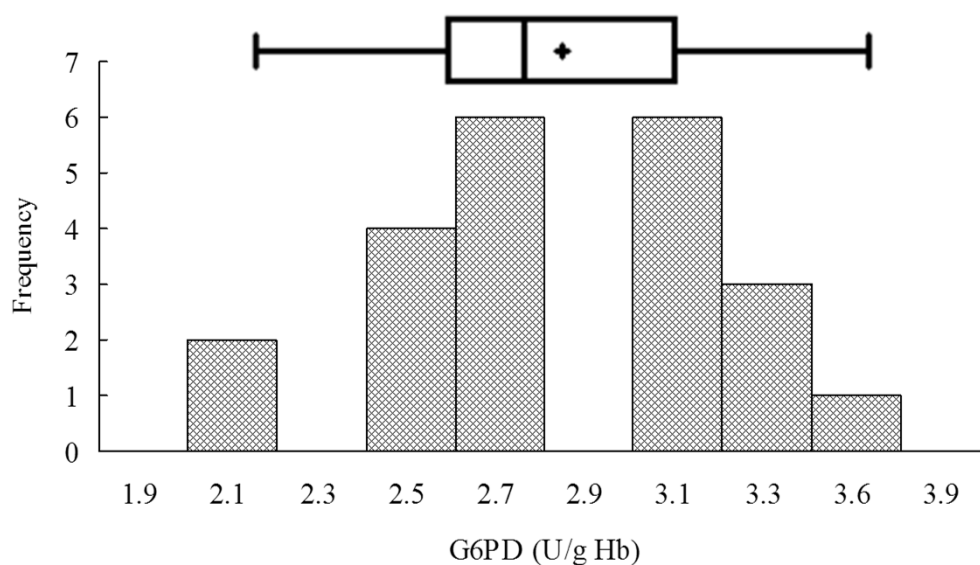
## Sample 2

**Median = 11.5 (n = 22)**

**Mean\* = 11.7 (n = 22)**

**SD\* = 1.0**

**CV = 8.5%**



## Sample 3

**Median = 2.7 (n = 22)**

**Mean\* = 2.8 (n = 22)**

**SD\* = 0.4**

**CV = 14.3%**

\*Robust results ( Mean and SD ) were calculated by Algorithm A according to ISO 13528:2005

Fig PHIQ-3

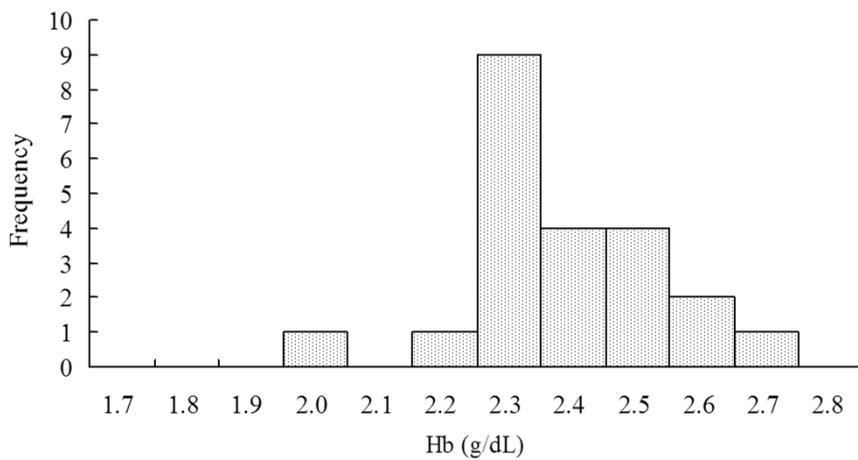
# RH2015-10 External Quality Assurance -Hb

Survey No. : RH2015-10

Sample sent on : 2015/09/28

Reporting deadline : 2015/10/05

Results reported (%) : 100%



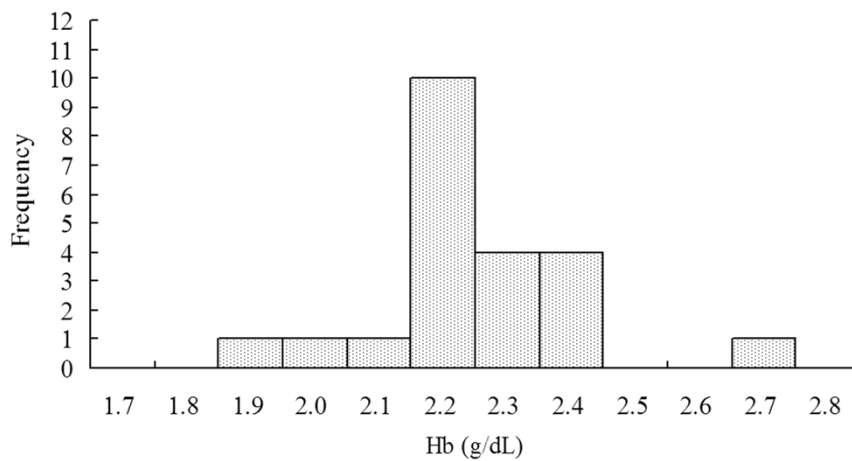
## Sample 1

**Median = 2.4 (n = 22)**

**Mean\* = 2.4 (n = 22)**

**SD\* = 0.1**

**CV = 4.2%**



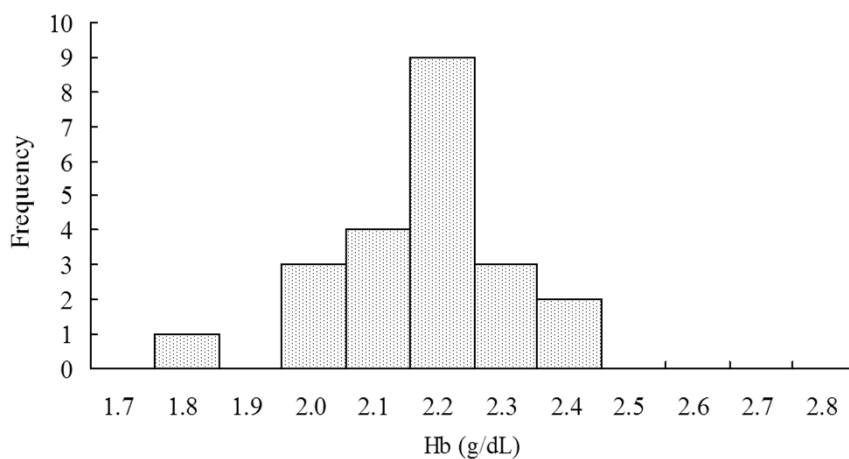
## Sample 2

**Median = 2.2 (n = 22)**

**Mean\* = 2.2 (n = 22)**

**SD\* = 0.1**

**CV = 4.5%**



## Sample 3

**Median = 2.2 (n = 22)**

**Mean\* = 2.2 (n = 22)**

**SD\* = 0.1**

**CV = 4.5%**

\*Robust results ( Mean and SD ) were calculated by Algorithm A according to ISO 13528:2005

Fig PHIQ-4

# External Quality Assurance (EQA) Program

## for

### G6PD Quantitative Test in Philippines

Survey No. : RH2015-10      Sample sent on : 2015 / 09 / 28

Reporting deadline : 2015 / 10 / 05

This Survey [S3](#) has been used in 2009-2015 (n = 8 ; Survey / Sample No.) :

[RH2009-09/S3](#) ; [RH2010-01/S3](#) ; [RH2011-05/S1](#) ; [RH2011-07/S3](#) ; [RH2012-05/S2](#) ; [RH2013-01/S3](#) ; [RH2014-01/S3](#) ; [RH2015-10/S3](#) ;

#### Intermediate Measurement Precision of G6PD Quantitative Test

Lab	Survey : <a href="#">RH2015-10 / Sample 3</a>		Program period: <a href="#">2009 ~ 2015<sup>3</sup></a>			
	U/gHb	SDI <sup>2</sup>	Mean	n	SD	CV
F02	2.6	-2.0	3.2	8	0.3	9.4%
F03	2.6	-0.8	3.6	8	1.3	36.1%
F04	2.5	-0.8	2.9	7 <sup>5</sup>	0.5	17.2%
F05	3.2	0.0	3.2	8	0.3	9.4%
F06	2.5	-1.2	3.2	7 <sup>6</sup>	0.6	18.8%
F07	3.1	-0.3	3.3	8	0.7	21.2%
F08	3.0	-0.4	3.2	8	0.5	15.6%
F09	2.5	-0.3	3.3	7 <sup>5</sup>	3.1	93.9%
F10	2.7	0.6	2.4	8	0.5	20.8%
F11	3.1	—	3.1	2	—	—
F12	3.6	—	3.4	2	—	—
F13	3.1	—	3.0	2	—	—
F14	2.1	—	2.5	2	—	—
F15	2.6	—	2.5	2	—	—
F16	3.1	—	3.1	1	—	—
F17	3.3	—	3.3	1	—	—
F18	2.7	—	2.7	1	—	—
F19	3.0	—	3.0	1	—	—
F20	2.6	—	2.6	1	—	—
F21	3.2	—	3.2	1	—	—
F22	2.5	—	2.5	1	—	—
F23	2.0	—	2.0	1	—	—
Total participating laboratories = 22						
Median	2.7	-0.4	3.1	—	0.5	18.8%
Range	2.0 ~ 3.6	-2.0 ~ 0.6	2.0 ~ 3.6	—	0.3 ~ 3.1	9.4% ~ 93.9%

- 1). Mean and SD are calculated by Robust method according to ISO 13528:2005
- 2). Standard Deviation Index (SDI) = (Individual Result - Individual Mean) / Individual SD
- 3). Survey / Sample No. : [RH2009-09/S3](#) ; [RH2010-01/S3](#) ; [RH2011-05/S1](#) ; [RH2011-07/S3](#) ; [RH2012-05/S2](#) ; [RH2013-01/S3](#) ; [RH2014-01/S3](#) ; [RH2015-10/S3](#)
- 4). Not participated in the [RH2009-09](#) survey.
- 5). Results not reported for the [RH2009-09](#) survey.
- 6). Results not reported for the [RH2010-01](#) survey.
- 7). Intermediate Measurement Precision : ISO 3534-2:2006