

Appendix I

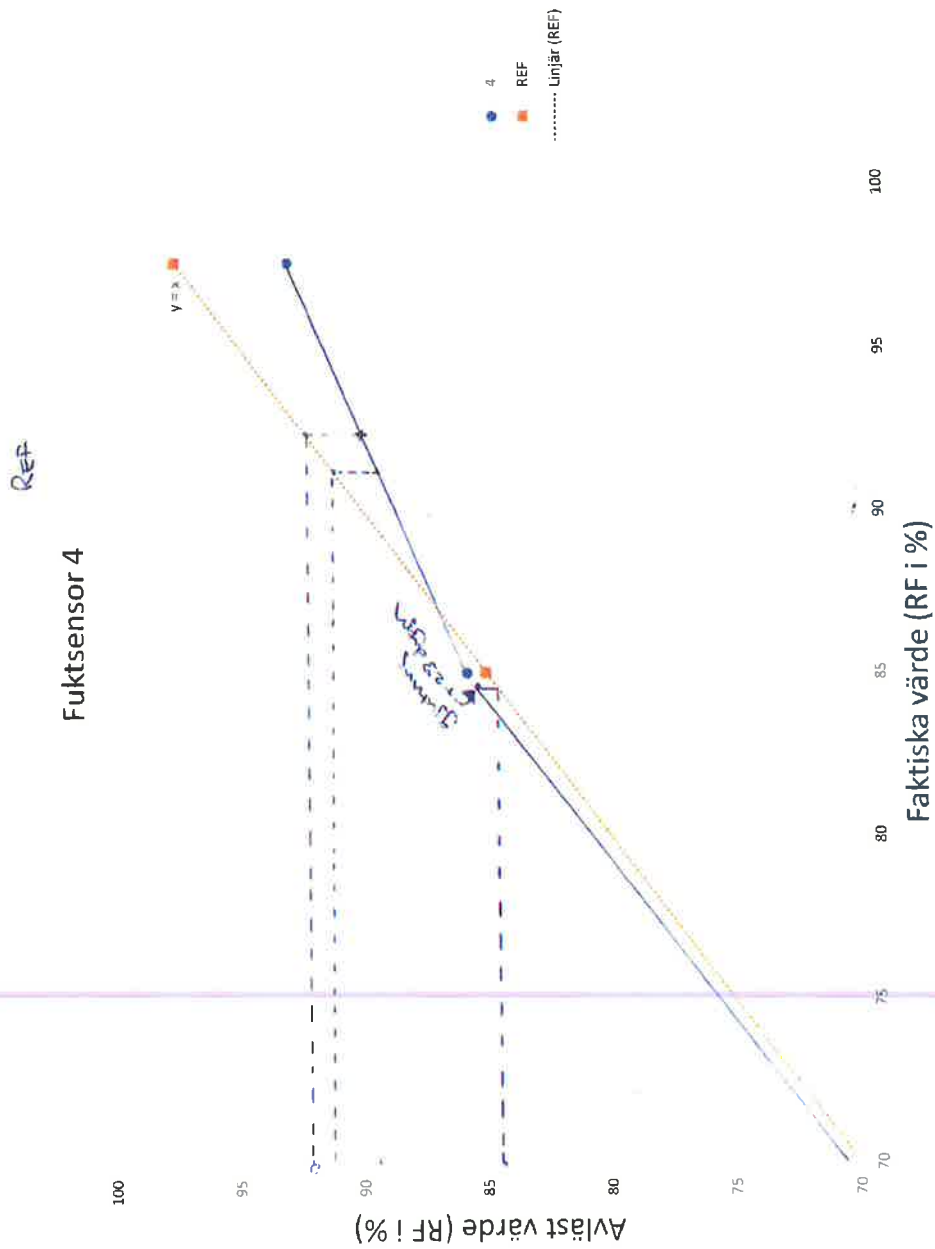


Figure 8. Sensor "4" .Reading of the correct RH (x-axis) via the observed RH (y-axis). The "REF" squares indicate the real RH and the corresponding (on the y-axis) circle shows the value read from the instruments (post experiment testing).

Appendix 1

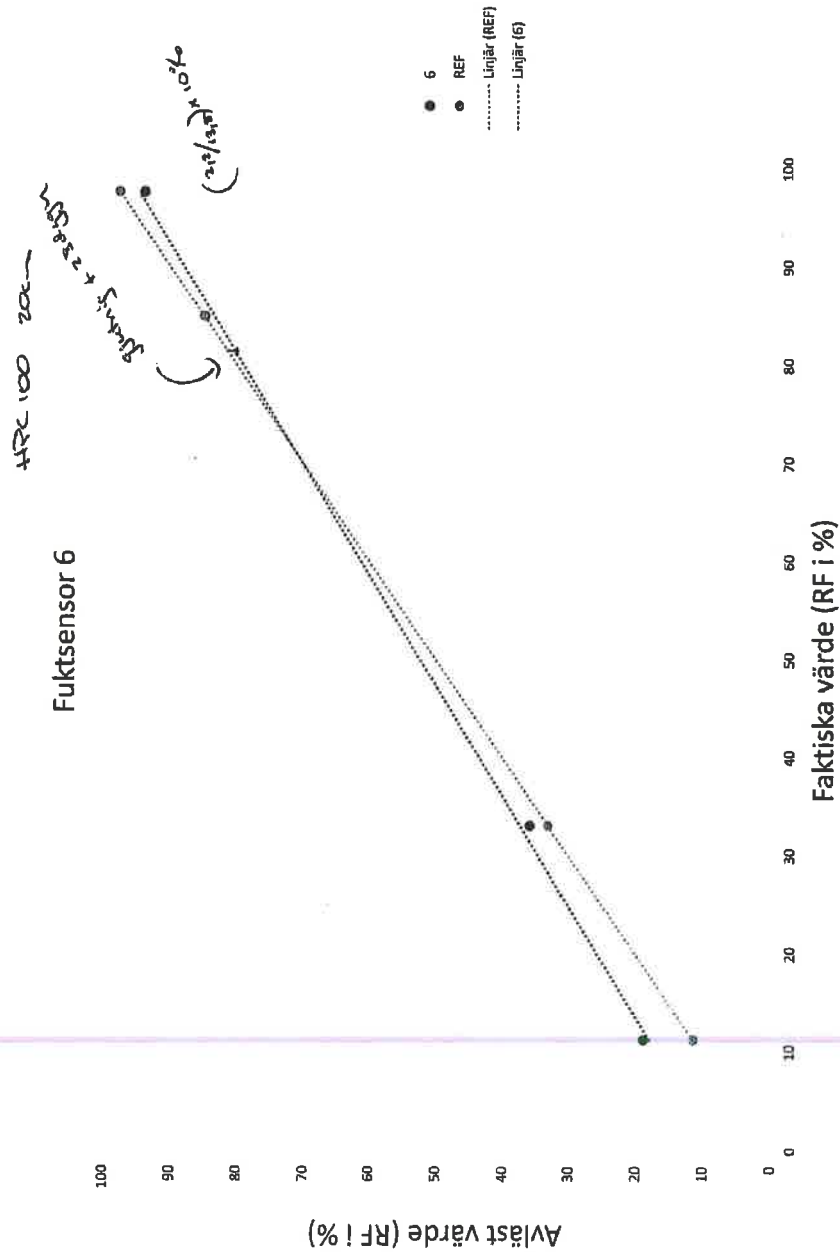


Figure 9. Sensor “-6” .Reading of the correct RH (x-axis) via the observed RH (y-axis) . The “REF” circles (lighter) indicate the real RH and the corresponding (on the y-axis) circles show the value read from the instruments (post experiment testing from “0%” RH – “100%” RH).

Appendix I

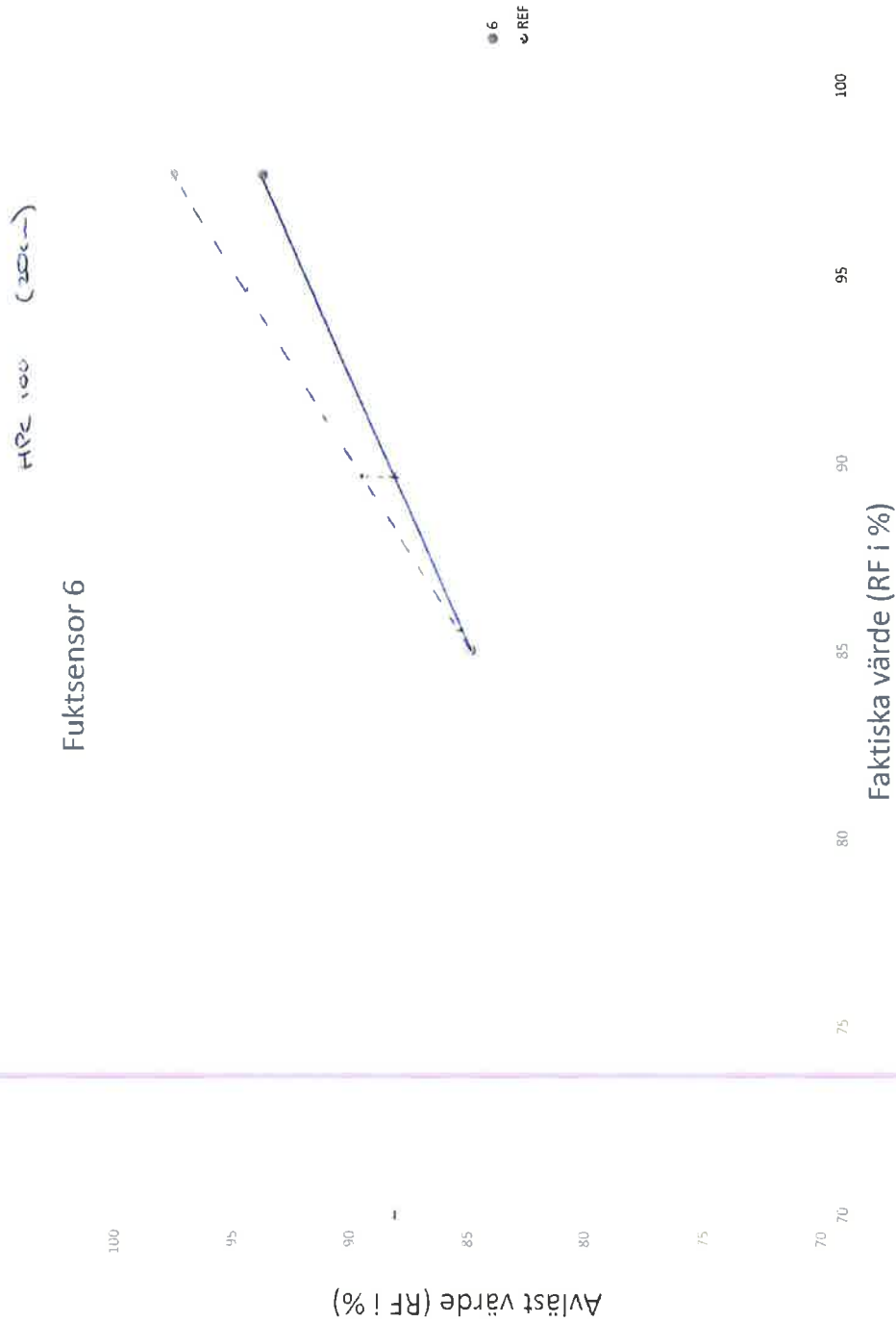


Figure 10. Sensor "6". Reading of the correct RH (x-axis) via the observed RH (y-axis) . The "REF" circles (lighter) indicate the real RH and the corresponding (on the y-axis) circles (darker) show the value read from the instruments (post experiment testing from 70% RH – "100%" RH).

Appendix 1

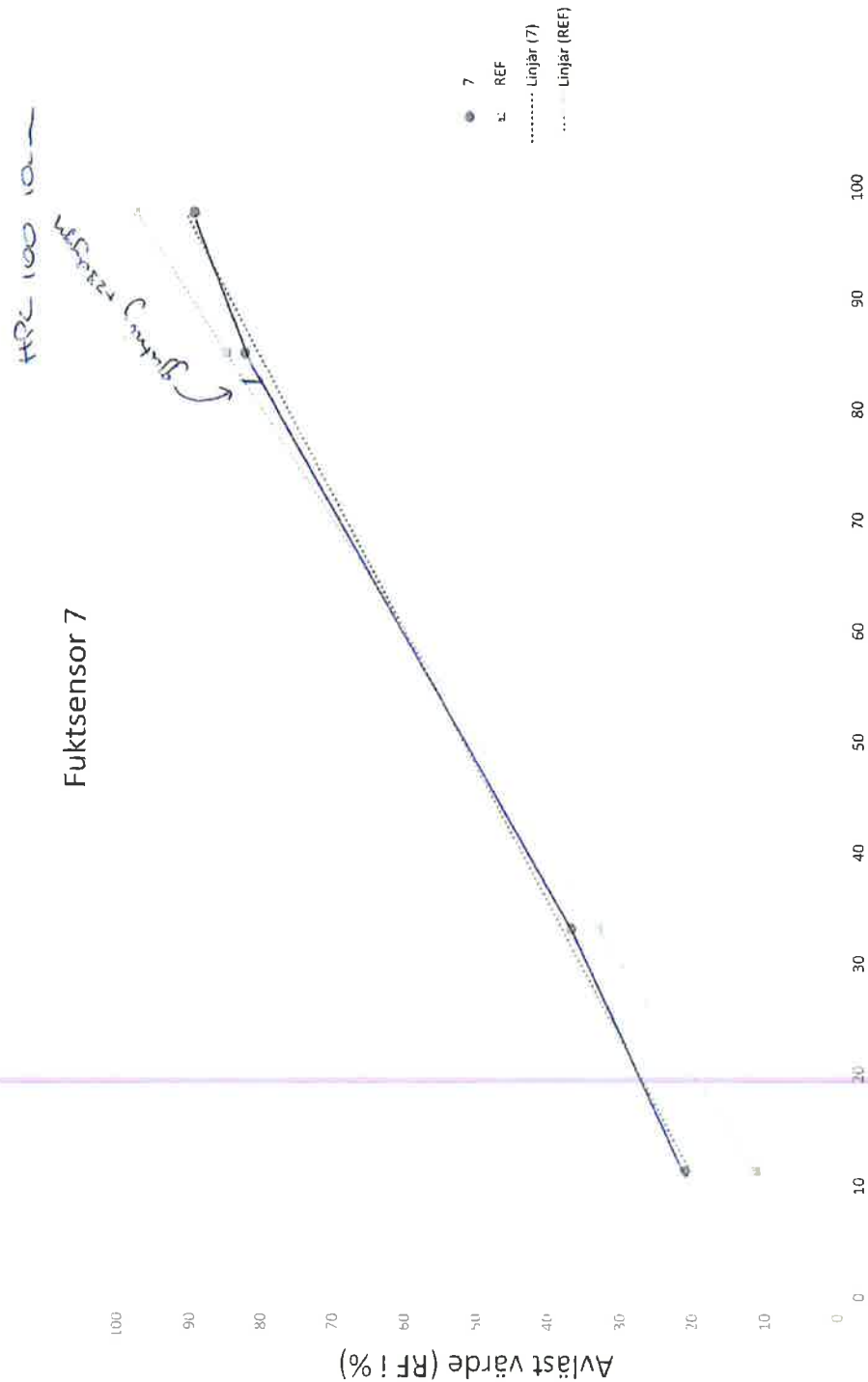


Figure 11. Sensor “-7”. Reading of the correct RH (x-axis) via the observed RH (y-axis). The “REF” squares indicate the real RH and the corresponding (on the y-axis) circles show the value read from the instruments (post experiment testing from “0%” RH – “100%” RH).

Appendix I

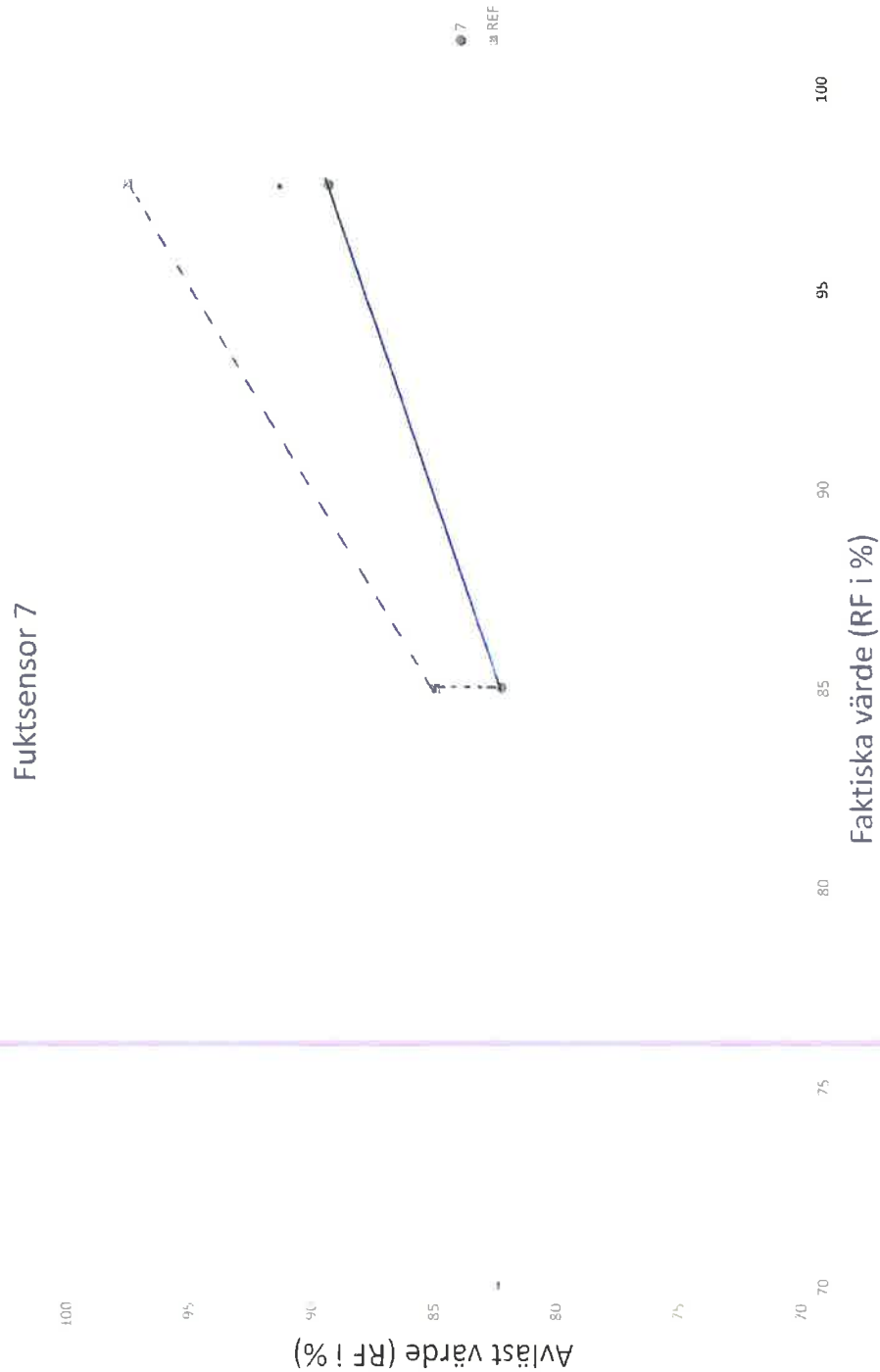


Figure 12. Sensor “-7” .Reading of the correct RH (x-axis) via the observed RH (y-axis) . The “REF” squares indicate the real RH and the corresponding (on the y-axis) circles show the value read from the instruments (post experiment testing from 70% RH – 100% RH).

Appendix 2



Figure 13. RH Sensor “-4”. Results from the post experiment saturated salt solution check. The squares “REF” show the true values (x -axis), whereas the circles show the instrument read values (y axis).

Appendix 2

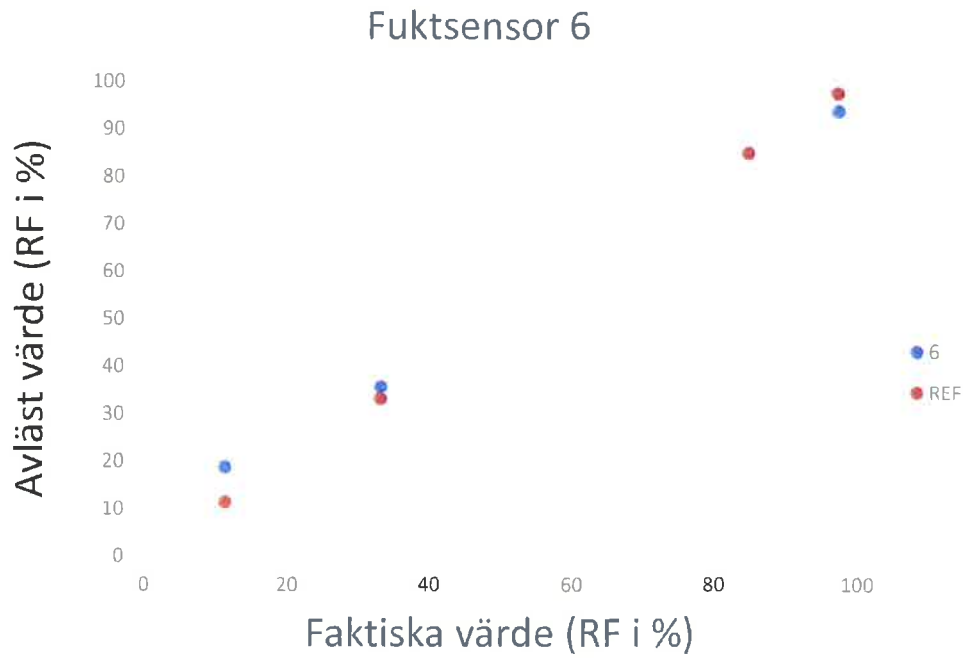


Figure 14. RH Sensor “-6”. Results from the post experiment saturated salt solution check. The circles (red) “REF” show the true values (x -axis), whereas the circles show the instrument read values (y axis).

Appendix 2

Fuktsensor 7

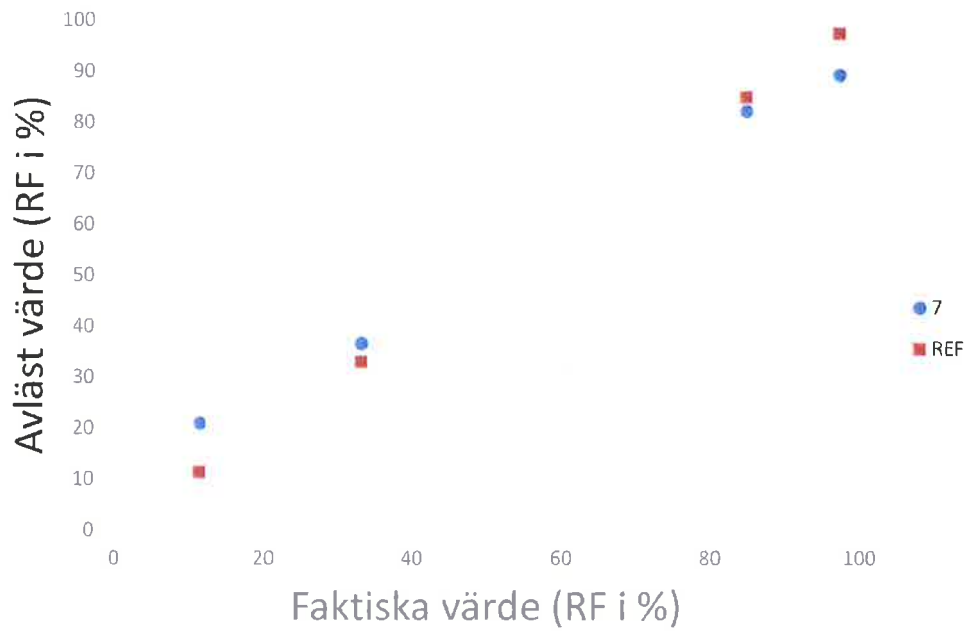


Figure 15. RH Sensor “-7”. Results from the post experiment saturated salt solution check. The squares “REF” show the true values (x -axis), whereas the circles show the instrument read values (y axis).

Appendix 3

KalibreringscertifikatUtfärdat av Byggnadsmiljö Mellansverige AB
Händelövågen 45,603 85 Norrköping

Certifikat: **2018001-4**
 Utfärdat datum: **2018-01-23**
 Uppdragsgivare: **Rise CBI Betoginstitutet**
 Normal: **Thunder Scientific 2500S S/N 9803120 *)**

Kalibreringsobjekt:
 Instrument:
 Mätsond: **Vaisala HMP110 H2530073**
 Avläsningsenhet: **Vaisala HM40 H2640002**
 Ankomstdatum:
 Kalibrering avslutad: **2018-01-19**

Tabell 1: Kalibreringsresultat för kalibreringsobjekt.

Kalibreringsnormal			Kalibreringsobjekt:			Avvikelse:		
Omgivande temperatur °C	Daggpunkt °C	Relativ fuktighet %rh	Omgivande temperatur °C	Daggpunkt °C	Relativ fuktighet %rh	Omgivande temperatur °C	Daggpunkt °C	Relativ fuktighet %rh
20.01	15.45	75.00	19.7	0.0	76.0	-0.3	-15.5	1.0
20.02	17.42	85.00	19.9	0.0	84.7	-0.1	-17.4	-0.3
20.02	18.33	90.00	19.9	0.0	89.5	-0.1	+18.3	-0.5
20.03	19.20	95.00	19.9	0.0	94.8	-0.1	-19.2	-0.2

Tabell 2: Utökad mätosäkerhet för kalibreringsstandard
Täckningsfaktor k = 2.

	%rh	%rh	%rh	%rh
Genererad fuktighet:	75.00	85.00	90.00	95.00
Mätosäkerhet:	±0.69	±0.75	±0.78	±0.81

Byggnadsmiljö Mellansverige AB
Datum: 2018-01-23 Signatur: 

Figure 16. RH calibration certificate. RH sensor “-4”

Appendix 3



Kalibreringscertifikat

Utfärdat av Byggnadsmiljö Mellansverige AB
Händelövägen 45,603 85 Norrköping

Certifikat: **2018001-6**
 Utfärdat datum: **2018-01-23**
 Uppdragsgivare: **Rise CBI Betonginstitutet**
 Normal: **Thunder Scientific 2500S S/N 9803120 *)**

Kalibreringsobjekt:
 Instrument:
 Mätsond: **Vaisala HMP110 H2530075**
 Avläsningsenhet: **Vaisala HM40 H2640002**
 Ankomstdatum:
 Kalibrering avslutad: **2018-01-19**

Tabell 1: Kalibreringsresultat för kalibreringsobjekt.

Kalibreringsnormal			Kalibreringsobjekt:			Avvikelse:		
Omgivande temperatur °C	Daggpunkt °C	Relativ fuktighet %rh	Omgivande temperatur °C	Daggpunkt °C	Relativ fuktighet %rh	Omgivande temperatur °C	Daggpunkt °C	Relativ fuktighet %rh
20.01	15.45	75.00	19.8	0.0	75.9	-0.2	-15.5	0.9
20.02	17.42	85.00	19.9	0.0	84.4	-0.1	-17.4	-0.6
20.02	18.33	90.00	19.9	0.0	89.3	-0.1	-18.3	-0.7
20.03	19.20	95.00	19.9	0.0	94.0	-0.1	-19.2	-1.0

Tabell 2: Utökad mätosäkerhet för kalibreringsstandard
Täckningsfaktor k = 2.

	%rh	%rh	%rh	%rh
Genererad fuktighet:	75.00	85.00	90.00	95.00
Mätosäkerhet:	±0.69	±0.75	±0.78	±0.81

Byggnadsmiljö Mellansverige AB
 Datum: 2018-01-23 Signatur:

Figure 17. RH calibration certificate. RH sensor “-6”.

Appendix 3

KalibreringscertifikatUtfärdat av Byggnadsmiljö Mellansverige AB
Händelövägen 45,603 85 Norrköping

Certifikat: **2018001-7**
 Utfärdat datum: **2018-01-23**
 Uppdragsgivare: **Rise CBI Betonginstitutet**
 Normal: **Thunder Scientific 25005 S/N 9803120 *)**

Kalibreringsobjekt:
 Instrument:
 Mätsond: **Vaisala HMP110 H2530079**
 Avläsningsenhet: **Vaisala HM40 H2640002**
 Ankomstdatum:
 Kalibrering avslutad: **2018-01-19**

Tabell 1: Kalibreringsresultat för kalibreringsobjekt.

Kalibreringsnormal			Kalibreringsobjekt:			Avvikelse:		
Omgivande temperatur °C	Daggpunkt °C	Relativ fuktighet %rh	Omgivande temperatur °C	Daggpunkt °C	Relativ fuktighet %rh	Omgivande temperatur °C	Daggpunkt °C	Relativ fuktighet %rh
20.01	15.45	75.00	19.7	0.0	76.8	-0.3	-15.5	1.8
20.02	17.42	85.00	19.9	0.0	85.6	-0.1	-17.4	0.6
20.02	18.33	90.00	19.9	0.0	90.4	-0.1	-18.3	0.4
20.03	19.20	95.00	19.9	0.0	95.5	-0.1	-19.2	0.5

Tabell 2: Utökad mätosäkerhet för kalibreringsstandard
Täckningsfaktor k = 2.

	%rh	%rh	%rh	%rh
Genererad fuktighet:	75.00	85.00	90.00	95.00
Mätosäkerhet:	±0.69	±0.75	±0.78	±0.81

Byggnadsmiljö Mellansverige AB
Datum: 2018-01-23Signatur: 

Figure 18. RH calibration certificate. RH sensor "-7".

Appendix 4

Table 7. Summary and calculation of measurement errors according to RBK manual.

	Std measurement error [%]	Std measurement error [%]^2
Spread	0	0
Non linearity	0.29	0.0841
Measurement drift in RH sensor	0.87	0.7569
Moisture absorbance (on sensor)	0.29	0.0841
Measurement errors in calibration	0.45	0.2025
From calibration tables	0.75	0.5625
Reference cell	0	0
Performed at other than 20oC	0	0
Temperature variation during measurement	0	0
Deviation of measurement hole depth	0.26	0.0676
Deviation in slab thickness	0	0
Sum of all (Std measurement errors [%]^2)		1.758
Square root of (1.758)		1.326
k=2 (2 x 1.326)		2.652
Always round upwards	"+"	2.7 %

2.

Correction factor for water moisture absorbed onto RH sensors surface = + 0.5 % (taken from Figure 27.2 in RBK version 6)