

Table 1: HWDS Systems characterization through control points temperature and microbiological measurements

System No	Mean temperature \pm SD, $^{\circ}$ C (min;max)				System mean heat loss ($^{\circ}$ C)	Point of use mean heat loss ($^{\circ}$ C)	Microbiological analysis, % positive		
	Water heater outlet	Principal return loop	Subordinate return loop	Point of use after 2 min			Culture		qPCR
							<i>Legionella</i> spp.	<i>L. pneumophila</i>	
1	62.2 \pm 0.9 (58.8;64.0)	57.2 \pm 0.1 (57.0;57.4)	-	54.8 \pm 6.8 (50.0;59.6)	5.0	7.4	6 % (1/17)	n.d. (0/17)	n.d. (0/17)
2	64.5 \pm 1.8 (55.9;67.0)	58.9 \pm 1.0 (57.0;60.0)	-	58.9 \pm 0.2 (58.8;59.2)	5.7	5.7	25 % (2/8)	n.d. (0/8)	13 % (1/8)
3	62.5 \pm 1.5 (46.7;66.0)	50.4 \pm 4.0 (47.5;54.7)	-	60.3 \pm 1.5 (59.2;61.3)	12.2	2.4	n.d. (0/5)	n.d. (0/5)	n.d. (0/5)
4	54.3 \pm 3.0 (43.0;61.0)	51.6 \pm 1.4 (50.0;53.0)	-	54.1 \pm 2.5 (51;56.7)	3.3	0	22 % (5/23)	22 % (5/23)	87 % (20/23)
5	61.6 \pm 1.9 (46.1;70.4)	53.9 \pm 0.6 (49.1;56.1)	3&5: 45.7 \pm 1.3 (34.1-50.2)	46.2 \pm 7.1 (36;63.3)	7.7	15.4	82 % (9/11)	27 % (3/11)	100 % (11/11)
			1&2: 48.0 \pm 1.7 (33.4-52.0)						
			Kitchen: 58.1 \pm 0.9 (35.4-62)						
			3: 46.6 \pm 1.9 (33.2-51.6)						

Table 2: Proposed risk classification based on temperature control points

Risk of amplification	Temperature criteria					Studied system classification
	Water heater outlet	Return loop	Taps or points of use	Heat loss		
				Mean	Max	
Very low	≥ 60°C At all times	> 55°C	> 55°C after 1 min	< 5°C	< 5°C	1
Low	≥ 60°C 90%	> 55°C	> 55°C after 1 min	< 5°C	< 10°C	
At risk	≥ 60°C < 90%	> 50°C	> 50°C after 2 min	<10°C	>10°C	2, 3
High risk	≥ 60°C < 50%	< 50°C	< 50°C after 5 min	> 10°C	> 10°C	4, 5