Code of practice for long term measurement of central chilled water system energy efficiency

CORRIGENDUM NO. 1

March 2014

1. Page 50, F.3 Data points

Replace the existing table with the attached table.

2. Page 56, F.5 Verification of data accuracy

a) *Replace* the heading with ‘Verification of data’.

b) In the first sentence, *replace* the word ‘accuracy’ with ‘uncertainty’.

S/N	Measured data point	Instrument type	Installation location	Input type	Maximum allowable end-to-end uncertainty	Sampling interval	Remarks
	Header						
1	Chilled water return flow (a)	Magnetic in-line flow meter	Before the by-pass valve, at the chilled water return header	Digital (high level interface from flow transmitter)	±1%	1 min	If the by-pass valve is open during the operation of the central chilled water system, to capture the building cooling load, the meter has to be installed before the valve.
2	Chilled water supply temperature (b)	10kΩ thermistor	After the by-pass valve, at the chilled water supply header	Analogue	±0.05^{0}C	1 min	
3	Chilled water return temperature (c)	10kΩ thermistor	Before the by-pass valve, at the chilled water return header	Analogue	±0.05^{0}C	1 min	
4	Condenser water supply flow (d)	Magnetic in-line flow meter	At the condenser water supply header	Digital (high level interface from flow transmitter)	±1%	1 min	

S/N	Measured data point	Instrument type	Installation location	Input type	Maximum allowable end-to-end uncertainty	Sampling interval	Remarks
5	Condenser water supply temperature (e)	10kΩ thermistor	At the condenser water supply header	Analogue	±0.05^{0}C	1 min	
6	Condenser water return temperature (f)	10kΩ thermistor	At the condenser water return header	Analogue	±0.05^{0}C	1 min	
7	Main incoming power supply to central chilled water system only	Class 0.5 digital power meter with class 0.5 current transformer	At power panel	Digital (high level interface from digital power meter)	±1%	1 min	
	Chiller						
8	Chilled water supply flow (g), (h)	Magnetic in-line flow meter	At individual chiller outlet	Digital (high level interface from flow transmitter)	±1%	1 min	
9	Chilled water supply temperature (i)	10kΩ thermistor	At individual chiller outlet	Analogue	±0.05^{0}C	1 min	

S/N	Measured data point	Instrument type	Installation location	Input type	Maximum allowable end-to-end uncertainty	Sampling interval	Remarks
10	Chilled water return temperature (j)	10kΩ thermistor	At individual chiller inlet	Analogue	±0.05^{0}C	1 min	
11	Condenser water return flow (k)	Magnetic in-line flow meter	At individual chiller outlet	Digital (high level interface from flow transmitter)	±1%	1 min	
12	Condenser water supply temperature (l)	10kΩ thermistor	At individual chiller inlet	Analogue	±0.05^{0}C	1 min	
13	Condenser water return temperature (m)	10kΩ thermistor	At individual chiller outlet	Analogue	±0.05^{0}C	1 min	
14	Chiller power	Class 0.5 digital power meter with class 0.5 current transformer	At power panel	Digital (high level interface from digital power meter)	±1%	1 min	

S/N	Measured data point	Instrument type	Installation location	Input type	Maximum allowable end-to-end uncertainty	Sampling interval	Remarks
	Chilled water pump						
15	Pump power	Class 0.5 digital power meter with class 0.5 current transformer	At power panel	Digital (high level interface from digital power meter)	±1%	1 min	
	Condenser water pump						
16	Pump power	Class 0.5 digital power meter with class 0.5 current transformer	At power panel	Digital (high level interface from digital power meter)	±1%	1 min	

S/N	Measured data point	Instrument type	Installation location	Input type	Maximum allowable end-to-end uncertainty	Sampling interval	Remarks
	Cooling tower						
17	Condenser water supply temperature at each cell	10kΩ thermistor	At individual cooling tower	Analogue	±0.05^{0}C	1 min	Comparing the condenser water supply temperature of each cooling tower allows the detection of poor performance or faults of the cooling tower.
18	Make-up water flow	Magnetic in-line flow meter	At individual chiller outlet	Digital (high level interface from flow transmitter)	±1%	1 min	
19	Fan motor power	Class 0.5 digital power meter with class 0.5 current transformer	At power panel	Digital (high level interface from digital power meter)	±1%	1 min	
	Weather station						
20	Relative humidity	Relative Humidity and temperature logger	Spaced along the length of the cooling towers	Analogue	±2%	1 min	
21	Ambient temperature				±0.2^{0}C	1 min	