**Solar Keymark Scheme rules - Annex Q3**

**Correction file for EN 12976-2:2017 to be taken into account when testing factory made systems for Solar Keymark certification**

| Date: 2017-03-12 | Standard: **EN 12976-2:2017** | SKN_N0444_Annex Q3 Correction file (EN 12976)_R01 |

| MB/ NC[1] | Line number | Clause/ Subclause | Paragraph/ Figure/ Table/ | Type of comment[2] | Comments | Proposed change | Observations of the secretariat |
|---|---|---|---|---|---|---|---|
| | | 5.2.3 | e) | Ed | The real volume in m³/s is 1.66E-4 ± 1.66E-5 instead of 2E-4 ± 3E-5. | …at a rate of (1.66 × 10-4 ± 1.66 × 10-5 ) m³/s | |
| | | 5.5.1 | End of first Paragraph | Ed | Confusion may arise, which kind of mechanical load test need to be applied. | Ad: Please note that only the positive pressure test is performed as described in the remainder clause. The negative pressure (lift of) test is already performed on the collector according to EN ISO 9806. | |
| | | 5.9.3.5.2 | Before Table 4 | Ed | Unclear formulation "…shall maximized at a value of 1" | The $\eta_{wh,nonsol}$, shall be limited to a maximum value of 1 . | |
| | | 5.9.3.5.2 | Table4 | Ed | $Q_{nonsol}$ is used where $Q_{ref}$ should have been used as "Load profile" | $Q_{ref}$ | |
| | | 5.9.3.5.2 | Formula $Q_{fuel}$ | Ed | $Q_{nonsol}$ is used where $Q_{ref}$ should have been used | $Q_{fuel} = Q_{ref} / \eta_{wh,nonsol}$ | |
| | | 5.9.3.5.3 | Formula $Q_{elec}$ | Ed | $Q_{nonsol}$ is used where $Q_{ref}$ should have been used | $Q_{elec} = Q_{ref}$, where $Q_{ref}$ daily heat demand in kWh according to Table 4 | |
| | | 5.9.3.5.4 | All formulas in the section | Ed | $Q_{nonsol}$ is used where $Q_{ref}$ should have been used | $$\eta_{wh,nonsol} = 0,95 \cdot \frac{Q_{ref}}{Q_{fuel} + CC \cdot Q_{elec} + Q_{cor}}$$ $$Q_{fuel} = \left( Q_{ref} + \left( 24 - \frac{Q_{ref}}{P_4} \right) \cdot P_{stby} \right) \cdot \frac{100}{\eta_4}$$ $$t_{on} = \left( Q_{ref} + \left( 24 - \frac{Q_{ref}}{P_4} \right) \cdot P_{stby} \right) \cdot \frac{1}{P_4}$$ Where $Q_{ref}$ [kWh]: daily heat demand for hot water according to the load profiles | |

1  **MB** = Member body / **NC** = National Committee (enter the ISO 3166 two-letter country code, e.g. CN for China; comments from the ISO/CS editing unit are identified by **\*\***)

2  **Type of comment:**   **ge** = general       **te** = technical       **ed** = editorial

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|---|---|---|---|---|---|---|---|
|  |  | 5.9.3.5.5 | Formula Ƞ$_{wh,nonsol}$ | Ed | $Q_{nonsol}$ is used where $Q_{ref}$ should have been used | $$\eta_{wh,nonsol} = 0,95 \cdot f \cdot \frac{COP_N}{CC} \cdot \frac{Q_{ref}}{Q_{ref} + S \cdot 24h}$$ |  |
|  |  | 5.10.7 | Settings table | Ed | The outside air temperature in the table shall be the same than the one given above. | Climate data: - Outside air temperature 10°C |  |
|  |  | 5.10.7 | Settings table | Ed | The climate data are always given in hourly values. | Climate data: substitute Data per 5 s by hourly data |  |
|  |  | 5.10.7 | Settings table | Ed | Draw-off: Demand temperature for V40 determination shall be 40°C | Draw off: substitute equal to set temperature of auxiliary by 40°C with mixing valve on |  |
|  |  | 5.10.7 | Settings table | Ed | The start time shall be a fixed value | Draw off: set start time to a fixe value of 23:00 to ensure the conditioning phase on the first day |  |
|  |  | Annex B/B.4 | Table B.5 | Ed | The minus shall be multiplication | 870 * $Q_{ref}$ / ($T_{dem}$ - 10) |  |
|  |  | Annex B/B.4 | Table B.5 | Ed | The current values are not the corrected values. The new values are according to the requirements of the EU publication CDR 812/2013, being 0,6 x ({old values} +1,09 | In the row with the heading "Daily heat demand (for annual prediction with a reduced demand based on equation 0.6*($Q_{ref}$+1,09)): 4,161 kWh; 7,647 kWh; 12,096 kWh; 15,372 kWh; |  |
|  |  | Annex B/B4 | Table B.5 | Ed | The current values in table B.5 do not sum up exactly to 100%and shall be changed to the new ones. | The values of columns with the heading "$V_{tap}$" start 21:00:<br><br>M: 25,76%; L: 31,89%; XL: 23,75%; XXL: 25,86% |  |
|  |  | Annex B/B.5 | Table B.9 | Ed | Due to the change in table B.5 confusion may arise on the interpretation of table B.9. | Add the following note after note 1:<br><br>Note 2 In contradiction with table B.5, the full daily load (=$Q_{ref}$) shall be applied and not the reduced daily load as prescribed in table B.5 |  |
|  |  | Annex G | Table | Ed | The values for the annual heat demand are slightly wrong as there were only 365 days per year considered. | Change the values for the annual heat demand to 1523 kWh; 2799 kWh; 4427 kWh; 5626 kWh |  |

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