**List of Tables**

**Table 1**  Structure parameters of airport pavement layers

**Table 2**  Maximum temperature differences and temperature gradients in the concrete slab over different months

**Table 3**  Material properties used in numerical analysis

**Table 4**  Load and structure parameters of B737-800 aircraft

**Table 5**  The statistics of numerical models

**Table 1.** Structure parameters of airport pavement layers

|  |  |  |
| --- | --- | --- |
| Pavement layers | Slab size /m | Thickness /m |
| Concrete Slab | 5 ×4.5 | 0.36 |
| CTB | 19 ×14 | 0.36 |
| CSB | 19 ×14 | 0.54 |
| Subgrade | 19 ×14 | 7.00 |

**Table 2.** Maximum temperature differences and temperature gradients in the concrete slab over different months

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Date | Positive | |  | Negative | |
| temperature difference  /°C | temperature gradient  /(°C·cm-1) |  | temperature difference  /°C | temperature gradient /(°C·cm-1) |
| August 14th | 12.1 | 0.50 |  | -7.8 | -0.33 |
| November 2nd | 4.6 | 0.19 |  | -9.8 | -0.41 |

**Table 3.** Material properties used in numerical analysis

|  |  |  |  |
| --- | --- | --- | --- |
| Structural components | *E* /MPa | *ν* | *ρ* /(kg/m3) |
| Concrete slab | 34000 | 0.20 | 2400 |
| CTB | 2550 | 0.25 | 2200 |
| CSB | 1800 | 0.30 | 2200 |
| Subgrade | 150 | 0.35 | 1900 |
| Dowel bar | 200000 | 0.30 | 7850 |
| Tension bar | 200000 | 0.30 | 7850 |

**Table 4.** Load and structure parameters of B737-800 aircraft

|  |  |
| --- | --- |
| Related parameters | Value |
| Maximum aircraft dynamic load /kN | 790.04 |
| Main landing gear number | 2 |
| Main landing gear configuration | single axle dual wheel |
| Main landing gear distance /m | 5.72 |
| Main landing gear wheelbase /m | 0.86 |
| Tire pressure | 1.47 |
| Wheel seal area /m2 | 0.13 |
| Wheel seal length / m | 0.43 |
| Wheel seal width /m | 0.30 |

**Table 5.** The statistics of numerical models

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Slab size | Thickness /cm | *L*/*W* | Temperature gradient  /(°C∙m-1) | | Loading position |
| 2 m×2 m | 20  25  30  35  40 | 1.00  1.05  1.10  1.15  1.20  1.25 | 50, -50, 60, -60 | | longitudinal middle edge of slab or slab corner |
| 3 m×3 m |
| 4 m×4 m |
| 5 m×5 m |
| 6 m×6 m |
| 7 m×7 m |
| 8 m×8 m |
| 9 m×9 m |
| total |  | | | 144 models | |