PAYSLP METHODOLOGY SERIES

Chapter 6 — Literature Review

Day Rate & Period Conversion — Bug Fix Log

A thematic synthesis of statutory, regulatory and policy literature

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ABSTRACT

This literature review examines the operational guidance and regulatory commentary governing the conversion of income between daily, weekly, monthly and annual pay periods within the United Kingdom Pay As You Earn (PAYE) system. Drawing on HMRC's PAYE Manual and Employment Income Manual, the review identifies the conversion conventions specified by HMRC for use in real-time PAYE calculations and analyses their implications for calculator design. Three themes are pursued: the formal convention adopted by HMRC for periodicity equivalence; the operational treatment of irregular and bonus pay; and the consequential design choice for annualised calculators of the kind employed in consumer-facing take-home pay tools. The review draws particular attention to the 26 May 2026 bug fix in the Payslp calculator, in which the previously-incorrect divisor for daily conversion was identified and corrected. The chapter concludes that period-conversion conventions, although superficially trivial, materially affect displayed take-home figures and warrant explicit specification.

Keywords: PAYE, periodicity, day rate, bonus, calculator design, 2026/27

1. Introduction

The conversion of income between time periods—the translation of an annual salary into its weekly, monthly or daily equivalent, or vice versa—is among the most frequently performed operations in any take-home pay calculator. Although the arithmetic appears trivial (one divides by 52, 12, or 260, as the case may be), the operational reality is more complex. HMRC's PAYE system applies tax and National Insurance on a period-by-period basis, with annualised thresholds divided into per-period equivalents in specific and not always intuitive ways. For a calculator that purports to display the 'exact' take-home pay an employee would in fact receive, the choice of conversion convention is not a technicality but a substantive implementation decision.

This chapter undertakes a thematic literature review of the principal HMRC operational guidance governing period conversion. Two sources are drawn upon: the PAYE Manual, which sets out the prescribed approach for computing per-period tax and NI; and the Employment Income Manual, which addresses the treatment of day-rate and irregularly paid workers. The chapter additionally addresses the bug fix log of the Payslp calculator, in which an incorrect daily-divisor convention was identified and corrected on 26 May 2026.

2. Scope and Methodological Approach

The review is confined to the period-conversion conventions relevant to take-home pay calculation: the translation of income between annual, monthly, weekly and daily expressions, and the consequent application of pay-period tax and NI thresholds. The review does not extend to the wider PAYE operational manual, nor to the treatment of pay codes, in-year code changes, or the K-code adjustment mechanism, which are properly addressed elsewhere.

Methodologically, the review is documentary: it relies on the HMRC manuals as the operative source of authority on PAYE calculation conventions. Where the manuals are silent (as on the precise convention for daily conversion in the absence of irregular-pay rules), the review draws on settled professional practice and on the Payslp methodology's own bug-fix history as evidence of the consequences of

getting the convention wrong.

3. Literature Review

3.1 The HMRC convention for period equivalence

The PAYE Manual (HMRC, 2026) sets out the operative conventions for periodicity equivalence in PAYE calculations. The standard convention treats the annual personal allowance as divided evenly across pay periods—52 weekly slices, 12 monthly slices, or 260 working-day slices—and applies tax to income earned within each period against that period's slice of the allowance. The convention is important because it produces an automatically progressive cumulative-basis PAYE: an employee whose pay accumulates smoothly through the year will see their actual tax liability settle close to the annualised figure, but irregular spikes (bonuses, commission) will be taxed at the corresponding marginal rate in the period in which they are paid.

The Employment Income Manual (HMRC, 2026) elaborates the convention for 'day rate workers', by which is meant employees paid on a per-day basis without a fixed monthly or weekly schedule. For these workers the convention is that the annual personal allowance is divided by 260 (the number of statutory working days in a typical year, computed as 52 weeks × 5 days), producing a daily allowance of approximately £48.35 for 2026/27 against the £12,570 annual allowance. The use of 260 is important: alternative conventions using 365 (calendar days) or 364 (52 × 7) would produce different per-day allowances and consequently different per-day tax.

3.2 Operational treatment of irregular and bonus pay

Most consumer-facing calculators present annualised figures by default, on the basis that this most clearly represents the 'steady-state' take-home pay an employee can expect over a full year. This is appropriate for the majority of users but conceals an important operational distinction: bonuses received in a single pay period are subject to the period's tax and NI thresholds, not the annual thresholds. An employee whose monthly salary places them in the basic rate band may, in the bonus month, see a portion of the bonus taxed at the higher rate—a temporary effect that resolves itself over the subsequent months as the PAYE system 'catches up' through the cumulative basis.

HMRC (2026, Employment Income Manual) describes this behaviour but observes that it is not generally well understood by employees, who often describe the bonus-month experience as 'over-taxation'. The Payslp calculator addresses this by offering an explicit per-period calculation mode in which the user can model bonus or irregular-pay outcomes, alongside the default annualised view.

3.3 The 26 May 2026 bug and its lessons

The Payslp calculator's production code, prior to 26 May 2026, used a daily divisor of 252 (a convention occasionally seen in payroll software, based on the assumption of 252 paid working days net of bank holidays) rather than the HMRC-prescribed 260. The discrepancy produced a slight overstatement of daily allowance (and consequent understatement of daily tax) on the order of 3.2 percent. Although small in absolute terms, the error was inconsistent with HMRC convention and produced systematically different figures from those an employer's payroll would produce. The fix, applied 24 May 2026 and verified 26 May 2026, aligned the calculator with the HMRC convention of 260 working days per annum.

This episode is illustrative of a more general principle in calculator design: conventions that appear arbitrary may in fact be load-bearing. The 260-day convention is a specification choice with operative legal consequences, not a mere computational convenience. Calculator implementations must follow the

convention, not improvise around it.

4. Synthesis and Implications for Calculator Implementation

The reviewed literature establishes a clear set of implementation requirements for period conversion. First, the annual personal allowance and tax bands must be divided by the HMRC-prescribed denominators—52, 12 and 260—for weekly, monthly and daily expressions respectively. Second, the calculator should offer both an annualised view (the default, suitable for steady-state pay) and a per-period view (suitable for bonus modelling). Third, the calculator should expose to users the difference between annualised and per-period results where they materially diverge, particularly during bonus or commission months.

The bug-fix history adds a fourth, more reflective implication. Calculator development is a process of convergence on HMRC convention, and that convergence is iterative. A mature calculator should maintain an explicit bug-fix log and should expose its conventions in a form that permits external audit. The Payslp methodology adopts this approach, with each material specification choice documented in the present chapter series and each correction logged against a date and source.

5. Conclusion

Period conversion in the UK PAYE system is governed by HMRC operational conventions that are easily overlooked but that have material consequences for displayed take-home figures. The 260-day annual working-day convention is the prescribed specification, and any calculator that diverges from it—as the Payslp implementation did until 26 May 2026—will produce figures inconsistent with those that an employer payroll system would in fact produce. The episode demonstrates the value of an explicit, audit-trail-based approach to convention specification, in which divergences from primary HMRC guidance are identifiable and correctable.

References

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