COVERING NOTE

GENERAL SECRETARIAT OF THE INTERNATIONAL TELECOMMUNICATION UNION

Geneva, 3 October 2005

ITU – TELECOMMUNICATION
STANDARDIZATION SECTOR

Subject: Erratum 1 (10/2005) to

ITU-T Recommendation G.650.2 (01/2005), *Definitions and test methods for statistical and non-linear related attributes of single-mode fibre and cable*

Modify the following clause as follows:

5.1.4.4.2.4 PMD calculation for fibres with weak mode coupling

For a weakly coupled fibre (e.g., a high birefringence fibre) or for a birefringent component, R(λ) resembles a chirped sine wave (Figure 15-a). Fourier transformation will give a P(δτ) output containing a discrete spike at a position corresponding to the relative pulse arrival time, δτ, the centroid of which is the PMD value <Δτ>.

To define the spike centroid <Δτ>, those points where P(δτ) exceeds a second predetermined threshold level T_2, typically set to 200% of the r.m.s. noise level of the detection system, are used in the equation:

$$< \Delta\tau >= \frac{\sum_{e=0}^{M'} [P_e(\delta\tau)\delta\tau_e]}{\sum_{e=0}^{M'} [P_e(\delta\tau)]} \qquad (5\text{-}27)$$

where M' + 1 is the number of data points of P within the spike which exceed T_2. <Δτ> in Equation ~~5-15~~5-27 is typically quoted in picoseconds. If the device under test is a fibre of length L, the PMD coefficient may be calculated using Equation 3-4. If no spike is detected (i.e., M' = 0), then PMD is zero. Other parameters such as the r.m.s. spike width and/or spike peak value may be reported.

If the device under test contains one or more birefringent elements, more than one spike will be generated. For a number n concatenated fibres/devices, $2^{(n-1)}$ spikes will be obtained.