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**STANDARDS BRANCH
- Power Division**

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SUBJECT: LV MID SPAN SEPARATION

Clause 11.3 c(b)-1 "Guidelines for Design and Maintenance of Overhead Distribution and Transmission Lines" provides the following formula for determining mid-span separation.

$$x^2 + (1.2Y)^2 > \frac{U}{150} + 0.4 D + li$$

Where;

x = projected horizontal distance between conductors (m)

y = projected vertical distance between conductors (m)

U = rms vector difference in potential (kV) between conductors

D = sag (m)

li = length of any free swinging suspension insulator

From the formula it can be seen that the governing factor for mid-span separation is the sag.

Example 1: HV/LV 12m pole, Cherry LV conductor at 65° operating temperature.

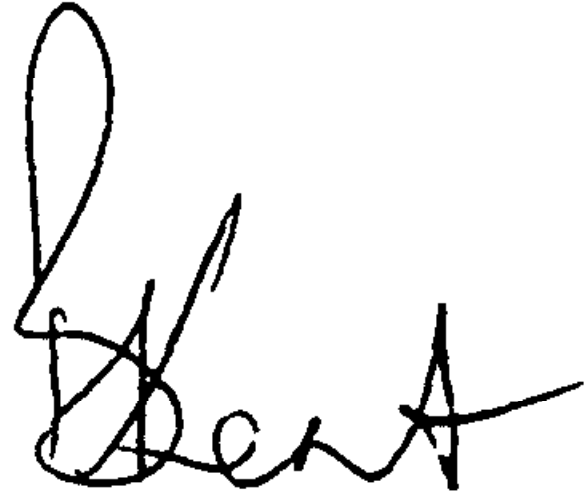
The LV crossarm is 8.8m above ground level and the minimum ground clearance to the LV conductors is 5.5m, giving a 3.3m sag.

From sag tension chart drawing S1-3-1-3 this equates to approximately 165m span.

Check mid-span separation.

From drawing S1-1-2-1 there is 0.51m between centres of the insulators on the 4 wire LV crossarm.

The above formula is also applicable to 11KV and 22KV overhead line construction, providing the correct conductor separation and phase voltage is used.

A handwritten signature in black ink, appearing to read "B Kent". The signature is written in a cursive style with a large initial "B" and a long horizontal stroke at the end.

BRIAN KENT
STANDARDS MANAGER POWER