In main manuscript following equation is presented to determine the total number of cuts generated to eliminate the current changeover sequence given by ordered set Seq for multipurpose blend unit.

$$Integer\ cuts\ generated = J_o + \sum_{x=1}^{X} G_x J_x$$

Where, $r = |Seq|$ and $X = n^{BSP} - 1 - r$. To determine total number of cuts, we define the situation as occupancy problem of distributing distinguishable tasks belonging to set Seq into X distinguishable even-points. In particular, we consider a special distribution where order of placement matters to maintain the current task changeover sequence.

$$J_o = \frac{C\left(n^{BSP} - 1, \pi_1, \pi_2, \ldots, \pi_r\right)}{r!} = \frac{\left(n^{BSP} - 1\right)\left(n^{BSP} - 2\right)\ldots\left(n^{BSP} - r\right)}{r!}$$

Parameter J_o denotes number of feasible task assignments that can generate the current changeover sequence, where each task in ordered set Seq is performed only once. The last event point has no production taking place because we restrict solution space of BSP by fixing allocation variable $wv_{i,j,N} = 0$ as stated in section 4.1.

Moreover, the assignment sequence can be maintained even if a particular blending a task $i \in Seq$ or multiple tasks are repeated total of x number of times. Equivalent to the parameter J_o, a parameter J_x calculates how many assignment will generate current task sequence order and also repeat certain tasks. This, means assigning $(r + x)$ tasks to an event-point set $\{1, 2, \ldots, n^{BSP} - 1\}$.

$$J_x = \frac{C\left(n^{BSP} - 1, \pi_1, \pi_2, \ldots, \pi_{r+x}\right)}{(r+x)!} = \frac{\left(n^{BSP} - 1\right)\left(n^{BSP} - 2\right)\ldots\left(n^{BSP} - r - x\right)}{(r+x)!}$$

Here, $\pi_w = 1, \quad \forall w \in \{1, 2, \ldots, n^{BSP}\}$. There are multiple ways of selecting which blending a task $i \in Seq$ or multiple tasks can be repeated total of x number of times. We provide formulation for parameter G_x to calculate for repetitions up to $x = 6$.

$$G_{x=1} = C(r,1)$$

$$G_{x=2} = C(r,1) + \frac{C(r,1,1)}{2!}$$

$$G_{x=3} = C(r,1) + 2\frac{C(r,1,1)}{2!} + \frac{C(r,1,1,1)}{3!}$$

$$G_{x=4} = C(r,1) + 3\frac{C(r,1,1)}{2!} + 3\frac{C(r,1,1,1)}{3!} + \frac{C(r,1,1,1,1)}{4!}$$

$$G_{x=5} = C(r,1) + 4\frac{C(r,1,1)}{2!} + 6\frac{C(r,1,1,1)}{3!} + 4\frac{C(r,1,1,1,1)}{4!} + \frac{C(r,1,1,1,1,1)}{5!}$$

$$G_{x=6} = C(r,1) + 5\frac{C(r,1,1)}{2!} + 10\frac{C(r,1,1,1)}{3!} + 10\frac{C(r,1,1,1,1)}{4!} + 5\frac{C(r,1,1,1,1,1)}{5!} + \frac{C(r,1,1,1,1,1,1)}{6!}$$

If only one task $i \in Seq$ is selected to repeat x number of times, then there are $\frac{r!}{1!(r-1)!}$ options.

If two different tasks are selected and each task is to repeat one time, then there are $\frac{C(r,1,1)}{2!}$ options to choose two tasks from set Seq. If tasks are to be repeated 3 times, then $G_{x=3}$ states different ways that can be done. The first term in $G_{x=3}$ states that we can either choose only one task to repeat 3 times, second term considers that we can choose two different tasks and repeat the first task 2 times and the second task 1 time or repeat the first task 1 time and the second task 2 times. The last term in $G_{x=3}$ considers selecting three different tasks to repeat only 1 time. Similarly, if tasks are repeated 4 times total, then we can select either one task to repeat 4 times or choose four different tasks to repeat each task only once. The second term in $G_{x=4}$ considers how many ways two different tasks can be chosen and these two chosen tasks can be repeated total of four number of times in 3 different ways. Of these two chosen tasks, the first task can be repeated 3 times and the second only 1 time or the first can be repeated 2 times and the second also 2 times or the first one repeated only 1 time and the second one 3 times. The third term in $G_{x=4}$ calculates number of ways three different tasks are chosen from set Seq and these three chosen tasks can be selected to repeat multiple times in 3 different ways: (1) the first task repeats 2 times, the second task 1 time, and the third task 1 time, (2) the first task repeats 1 time, the second task 2 times, and the third task 1 time, (3) the first task repeats 1 time, the second task 1 time, and the third task 2 times.

We have provided formulation for calculating G_x for only up to 6 total tasks repetitions, however, if needed reader can derive the formulation for higher number repetitions as necessary.