ACCELERATOR STATUS DEFINITIONS

Acceptable Beam in Use (ABU)

Both the Accelerator and the Hall are meeting program requirements, which in most cases means the Accelerator is delivering beam which the Hall is using for a measurement, a calibration, or an experiment. **Time is awarded to this category only if time is also awarded to Experiment Ready** (see below). If time cannot be awarded to Experiment Ready, then time cannot be awarded to ABU, and should be awarded to BANU if Accelerator is considered capable of delivering acceptable beam. This category defines "Simultaneous Availability", which measures the percentage of time that both the accelerator and the experiment are functioning acceptably.

Beam Available but Not in Use (BANU)

The Accelerator is considered to be able to meet program requirements, but the Experiment is not in an Experiment Ready status and therefore cannot make productive use of the beam. Award time to this category if the Experiment is in Planned Configuration Change or Unplanned Experiment Down (see below) and the Accelerator is considered able to meet program requirements. The accelerator should be considered able to meet program requirements when the beam has been available but delivery was terminated by request of the experiment collaboration because of the need to access the hall to investigate and repair a problem or to accomplish a planned configuration change.

Beam Not Available or Unacceptable (BNA)

The Accelerator is unable to meet program requirements, which in most cases means it is unable to deliver acceptable beam. This includes time spent investigating, troubleshooting, and repairing a software or hardware problem. It also includes time used for unplanned beam tuning (e.g., time spent tuning the accelerator after an unexpected event, such as an equipment failure or when the beam characteristics have drifted "out of spec" so that the beam is no longer useful, or when an accelerator configuration change (see below) takes longer than was planned).

Accelerator Configuration Change (ACC)

The accelerator is making a planned change in the beam(s) being delivered. Typically this involves the switching of the orbit number (pass) of the beam delivered to one or more halls, or the setup of the accelerator for a different linac energy, or a transition from polarized to unpolarized beam (or vice versa). These configuration changes occur each time the schedule shows a change in beam delivery conditions to one or more halls. The time allocated for the planned configuration change is identified in advance on the web schedule notes and/or on the "white board," for near-term accelerator operations. If the configuration change takes longer than scheduled on the white board, then time switches to the (BNA) category.

NOTE: The sum of the times awarded to ABU, BANU, BNA, and ACC must equal the elapsed time of the period being measured. For an eight-hour shift, they must add up to eight hours.

EXPERIMENT STATUS DEFINITIONS

Experiment Ready (ER)

The experimental equipment is meeting program requirements or is considered capable of meeting program requirements if the Accelerator is in a BNA status. "Experimental equipment" includes the target, detectors, magnets, diagnostics, data acquisition systems, and all other equipment essential to fulfilling program requirements that is the responsibility of the hall experiment collaboration.

Planned Configuration Change (PCC)

The Hall is making a planned change to the software or hardware configuration, and this activity interrupts data taking or other activities in progress. Some PCCs require a Hall access. Examples of PCCs include: moving a spectrometer, changing or refilling a target, tuning or cycling magnets, and a planned change of detector gas.

Unplanned Experiment Down (UED)

The experimental equipment is unable to meet program requirements because of an unplanned event, such as a software or hardware failure. Time spent investigating, troubleshooting, and repairing is assigned to this category.

NOTE: The sum of the times awarded to ER, PCC, and UED must equal the elapsed time of the period being measured. For an eight-hour shift, they must add up to eight hours.

METRICS DEFINITIONS

T = Total time in the shift planned for physics activities (most often 8 hours)

By definition: $T = ABU + BANU + BNA + ACC$

$T = ER + PCC + UED$

The Accelerator Availability = $\frac{ABU + BANU}{ABU + BANU + BNA} = \frac{ABU + BANU}{T - ACC}$

The Experiment Availability = $\frac{ER + PCC}{ER + PCC + UED} = \frac{ER + PCC}{T}$

The Simultaneous Availability = $\frac{ABU}{T - ACC}$