GPS Clocks and PMU Inter-operability Issues

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Common Clock Installation Issues

• 1344 Enable
  – Sometimes results in year 2000 in time/date field
  – Major clock manufacturer lists this feature deep in their product manual.

• Coax loading
  – Two PMUs in same rack
  – One had valid clock, the other didn’t’

• PMU/Clock Compatibility
  – One clock model worked; the other didn’t
  – Use a higher quality clock

➢ Utilities not prepared for precise time
Long Term Maintenance Issues

• Field technicians set up and maintain PMU’s
  – Not familiar with clock precision needed for synchrophasors

➤ Maintenance will become a problem

• Need engineering support during PMU installation and maintenance
• Need support from PMU & clock vendors
Emerging Clock Issues

• Standards changing —> multiple & incomplete

• Legacy Equipment Issues
  – C37.118.2 compatibility with C37.118-2005
  – Coax to ethernet
  – Time quality bit definition
  – Backup time source during failure & resynch.

▶ Leap second: June 30, 2012
Questions