



Technical Memo on the Use of Ultra-violet Light
to Determine Photomultiplier Tube Type

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The problem I had was the determination of photo tube type since their labels had been destroyed. I knew that a tube was either a RCA 8575 or a RCA 31000M. The difference between these two tubes is the window material. The 8575 uses a type of glass and the 31000M uses quartz. Dave Anderson of the Particle Detector Group suggested a simple test, shine an U-V source on the window if the material fluoresces then it is glass (if it doesn't, it is quartz). The ultra-violet source used was an Edmund Scientific ultra-violet lamp. This technique is easy and works beautifully.

Another question was whether or not U-V could be used to determine tube type when both tubes had glass windows. The other unknown tube was either a RCA 6655 or RCA 6342 (I knew this from how it looks and where it was found). I found that the glass face of a 6655 fluoresces with an orange coloration whereas the 6342 fluoresces with a blue coloration so the unknown had to be a 6342 because the color matched.

This technique will be useful for determining unknown tube types in the future.