USSR Scintillator Nal(tl) 24 X 40 mm TEST

A few months ago I decided to buy this crystal scintillator made in Soviet Union late 80's.

The crystal has never been used, arrived with her original packaging, I'm not notice yellowing or defects consistent.

Compared to a crystal of recent construction known that the glass is very often.

The outer material is made of aluminum, dimensions are 24 X 40 mm its theoretical range should be for energy range from 40 to 1800 kev.



Let us now see how it was housed inside a tube of chrome plated brass.

This is required:



Aluminum foil tape Tube of 32 mm (thickness 2/10 mm) chrome-plated brass Seals or O-rings Plastic plugs



Prepare a cap, make one hole in the center in order to expose the crystal, while keeping it protected inside the frame of the cap.



Solder the resistors on the PMT socket



Put the BNC and connect the socket on the rear cap



Put the seals and secure with cyanoacrylate glue.



This and the cap is seated, light-tight.



Cut a piece of aluminum tape and place it to the tube, fold the excess on the edges.



Insert the perforated cap and attach the whole thing.



Here's what the finished probe.



This is the test kit

Scintillator Nal(tl) 24X40 mm PMT 9125B ET Enterprise 29 mm Theremino PMT adapter 550/1000 V 0,3 mv p/p ripple Theremino USB Audio adapter PC with Windows XP and Theremino MCA 5.0 Check source Spark Gap (0,1 nCi Cs137)



Background measurement , note the minimum energy set to 0, due to the low supply ripple. pulses per second are about 48.



Background + Spark Gap tube placed in front of the sensor can be seen from 662 Kev photopeak and the the left the 32 Kev, we can also appreciates the Compton scattern from 200 to 500 Kev, now pulses rise to 85 per second, the FWHM of 7.7% is not bad for a crystal of 30 years!