### Summer 2010 Measurement Campaign
#### Part II : Measurements at AAA
July 21, 2010
M. Rafecas

<table>
<thead>
<tr>
<th>21</th>
<th>22</th>
<th>23</th>
<th>26</th>
<th>27</th>
<th>28 July</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wednesday</strong></td>
<td><strong>Thursday</strong></td>
<td><strong>Friday</strong></td>
<td><strong>Monday</strong></td>
<td><strong>Tuesday</strong></td>
<td><strong>Wednesday</strong></td>
</tr>
<tr>
<td>Transport</td>
<td>Count rate measurements</td>
<td>Capillaries I</td>
<td>MicroPSI centered aligned</td>
<td>NEMA NU4-NEMA NU4</td>
<td></td>
</tr>
<tr>
<td>Tests</td>
<td></td>
<td>Capillaries II</td>
<td>MicroPSI off-centered aligned</td>
<td>NEMA NU4 – CWH centered</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Capillaries II</td>
<td>MiniDeluxe Alligned (overnight)</td>
<td>NEMA NU4 – CWH off-center</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Decay Time correction (overnight)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Wednesday is to be planned after the first analysis)
## Count rate & Count losses measurements

<table>
<thead>
<tr>
<th>id</th>
<th>Phantom (all centered)</th>
<th>Initial Activity</th>
<th>F2F</th>
<th>Oblique</th>
<th>Rotation</th>
<th>Time / run</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mini Deluxe with inserts</td>
<td>100 MBq</td>
<td>YES</td>
<td>No</td>
<td>NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>MicroDerenzo PSI without inserts</td>
<td>50 MBq</td>
<td>YES</td>
<td>No</td>
<td>NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>MicroDerenzo PSI without inserts</td>
<td>10 MBq</td>
<td>YES</td>
<td>No</td>
<td>NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>NEMA Hot-Cold-Warm</td>
<td>30-40 MBq</td>
<td>YES</td>
<td>No</td>
<td>NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Capillaries: we can fill the holder with 10 capillaries</td>
<td>50 MBq (5 MBq / capillary)</td>
<td>YES</td>
<td>No</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Capillaries: we can fill the holder with 10 capillaries</td>
<td>10 MBq (1 MBq / capillary)</td>
<td>YES</td>
<td>No</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>NEMA Hot-Cold-Warm</td>
<td>30-40 MBq</td>
<td>no</td>
<td>YES</td>
<td>NO</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Decay time correction

<table>
<thead>
<tr>
<th>id</th>
<th>Phantom (all centered)</th>
<th>Initial Activity</th>
<th>F2F</th>
<th>Oblique</th>
<th>Rotation</th>
<th>Time / run</th>
<th>Runs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NEMA Hot-Cold-Warm</td>
<td>30-40 MBq (to be defined after count rate measurement)</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>The time per run will be adapted to the decay time For the first run ( t = 100 ) s</td>
<td>&gt; 36</td>
</tr>
</tbody>
</table>
## Image quality and image resolution (reconstruction)  
(Rotation needed)

<table>
<thead>
<tr>
<th>Phantom</th>
<th>Activity</th>
<th>N steps (36 / 27?)</th>
<th>Counts / run Time / run</th>
<th>Desired statistics (total for acquisition)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capillaries I</td>
<td></td>
<td>27 (9 + 18)</td>
<td></td>
<td>2 x 10⁷ (golden)</td>
</tr>
<tr>
<td>Capillaries II</td>
<td></td>
<td>27</td>
<td></td>
<td>2 x 10⁷ (golden)</td>
</tr>
<tr>
<td>Capillaries III</td>
<td></td>
<td>27</td>
<td></td>
<td>2 x 10⁷ (golden)</td>
</tr>
<tr>
<td>MiniDeluxe Alligned</td>
<td></td>
<td>27</td>
<td></td>
<td>&gt; 1 x 10⁸ (golden)</td>
</tr>
<tr>
<td>MiniDeluxe Perpendicular</td>
<td></td>
<td>27</td>
<td></td>
<td>&gt; 1 x 10⁸ (golden)</td>
</tr>
<tr>
<td>MicroPSI center aligned</td>
<td></td>
<td>27</td>
<td></td>
<td>3 x 10⁷ (golden)</td>
</tr>
<tr>
<td>MicroPSI off-center aligned</td>
<td></td>
<td>27</td>
<td></td>
<td>3 x 10⁷ (golden)</td>
</tr>
<tr>
<td>MicroPSI off-center perpendicular</td>
<td></td>
<td>27</td>
<td></td>
<td>3 x 10⁷ (golden)</td>
</tr>
<tr>
<td>NEMA NU4-NEMA NU4</td>
<td></td>
<td>27</td>
<td></td>
<td>&gt; 1 x 10⁸ (golden)</td>
</tr>
<tr>
<td>NEMA NU4 – CWH centered</td>
<td></td>
<td>27</td>
<td></td>
<td>&gt; 1 x 10⁸ (golden)</td>
</tr>
<tr>
<td>NEMA NU4 – CWH off-center</td>
<td></td>
<td>27</td>
<td></td>
<td>&gt; 1 x 10⁸ (golden)</td>
</tr>
</tbody>
</table>

(Repeat some measurements for 36 steps)  

| 36                           |  |   | | |

### Table 1: Main features of the proposed measurements. The values printed in blue for the desired statistics are inspired from the first ETH campaign.

### Open issues

- **Time per run**: According to the results arising from the count rate measurement and the decay time correction measurements, the strategy will be decided.
- **Activity**: The results arising from the count rate measurement will allow us to define the range of activity which can be used for imaging purposes.