



Záznam o meraní a skúške

| | | |
|-----------------------------|--|---------------------------------------|
| identifikácia merania: | overenie meradla | |
| kód služby: | <i>číslo pridelené v SMU</i> | |
| objednávateľ: | <i>označenie objednávateľa</i> | |
| | | |
| použitá metodika: | PP09/250 | |
| etalón: | etalónové meradlá naviazané na NE 028/98 a ďalšie národné a medzinarodné etalóny | |
| ožarovač: | Creos XHF | |
| ožarovacia geometria: | na ožarovacom stole v súlade s pož.výrobcu a príslušných STN | |
| | | |
| dátum prevzatia meradla: | <i>dátum prevzatia meradla</i> | |
| dátum merania: | <i>dátum merania</i> | |
| podmienky merania: | T [°C] = vid' príslušné hárky meraní P [kPa] = vid' príslušné hárky meraní H [%] = vid' príslušné hárky meraní | |
| | | |
| <u>meradlo(druh):</u> | <u>skúšané meradlo:</u> | <u>etalónové meradlá:</u> |
| číslo meradla v evid.liste: | meradlo kvality rtg. zväzkov | meradlo kvality rtg. zväzkov |
| Obchodný názov meradla: | <i>číslo v evidencii centra 250 SMU</i> | |
| Výrobca: | Unfors ThinX RAD | Diagnostický dozimeter (elektrometer) |
| Typ: | Unfors, Sveden | PTW-Freiburg, Nemecko |
| výr.číslo: | ThinX RAD | PTW UNIDOS |
| pre kvalitu rtg. zväzku: | <i>výrobné číslo</i> | <i>výrobné číslo</i> |
| rozsah: kV | <u>Conv.rdg.</u> | <u>Conv.rdg.</u> |
| Ka | 45 ÷ 150 kV | 50 ÷ 125 kV |
| príkon Ka | 20uGy(100pri 50kV)÷999mGy | 30uGy÷500mGy |
| čas | 0,1(pre U>70kV, 0,5pre U=50kV)÷100mGy/s | 5uGy/s÷5mGy/s |
| mAs | 10ms ÷ 10s | 1ms ÷ 5s |
| príslušenstvo: | | 0,5 ÷ 999,9mAs |
| Obchodný názov meradla: | | planparalel.ionizač.komora |
| Typ: | | PTW |
| výr.číslo: | | TM34069 (6,1cm ³) |
| | | <i>výrobné číslo</i> |
| | | |
| <u>výsledok skúšky:</u> | | |
| STN 61674: | <u>vyhovuje</u> | |
| STN 61676: | <u>vyhovuje</u> | |
| Vykonávatelia: | Dátum: | Meno: |
| merania vykonal: | dátum merania | <i>meno</i> |
| protokol spracoval: | dátum merania | <i>meno</i> |
| skontroloval: | dátum merania | <i>meno</i> |

| č.k. | Q | h_i | U_{RTG} | $U_{V/N}$ | I_{RTG} | t_{EXP} | X_{EXP} | n | v_x | $u_2(K_2)$ | K_{kor} | K_{kor} | $U_2(K_2)$ | k_{ZD} | v_N | $u_2(K_2)$ | K_{Nkor} | K_{kor} | $U_2(K_N)$ | R | R_k | $l(K_{kor})$ | $l(K_{kor})$ | vyhovuje.ak: | $(R_{max}-R_{min})/(R_{max}+R_{min})$ | vyhovuje.ak: |
|---|------|-------|-----------|-----------|-----------|-----------|-----------|---|-------|------------|-----------|-----------|------------|----------|-------|------------|------------|-----------|------------|-------|-------|--------------|--------------|--------------|---------------------------------------|--------------|
| <p>Nezostavený zväzok (pred AI fantómom):</p> <p>meradlo</p> <p>etalón</p> <p>Nezostavený zväzok (pred AI fantómom):</p> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| K1 | RQR5 | 2,5 | 70 | 69.53 | 160 | 315 | 50 | 5 | 0.00 | 0.00 | 5.820 | 5.820 | 5.0 | 2.78 | 0.19 | 0.09 | 2.162 | 6.006 | 5.0 | 1.032 | 1.032 | 3.10 | 3.10 | 1 | | |
| K2 | RQR5 | 2,5 | 70 | 69.52 | 50 | 1002 | 50 | 5 | 0.07 | 0.03 | 5.972 | 5.972 | 5.0 | 2.78 | 0.05 | 0.02 | 2.207 | 6.129 | 5.0 | 1.026 | 1.026 | 2.57 | 2.57 | 1 | -0.002 | 1 |
| K3 | RQR5 | 2,5 | 70 | 69.53 | 300 | 169 | 50 | 5 | 0.10 | 0.04 | 5.736 | 5.736 | 5.0 | 2.78 | 0.26 | 0.12 | 2.112 | 5.866 | 5.0 | 1.023 | 1.023 | 2.21 | 2.21 | 1 | | |
| <p>korekcia na rozdielne vzdialenosti ZD pre etalón a meradlo:</p> <p>etalón $ZD_{0et}(mm)=1000$ $k_{ZD}=2.778$ použitý kalibračný koeficient meradla: $N_{sk}=1.000$ $U(N_{sk})\%=0.0$</p> <p>meradlo $ZD_{0m}(mm)=600$ $U(k_{ZD})\%=0.2$ použitý kalibračný koeficient meradla: $N_{sk}=1.000$ $U(N_{sk})\%=0.0$</p> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Zostavený zväzok (za AI fantómom):</p> <p>meradlo</p> <p>etalón</p> <p>Zostavený zväzok (za AI fantómom):</p> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| K4 | RQA5 | 23,5 | 70 | 69.53 | 160 | 315 | 50 | 5 | 0.00 | 0.00 | 85.0000 | 85.0000 | 5.0 | 1.00 | 0.13 | 0.06 | 88.552 | 88.552 | 5.0 | 1.042 | 1.042 | 4.01 | 4.01 | 1 | | |
| K5 | RQA5 | 23,5 | 70 | 69.53 | 64 | 785 | 50 | 5 | 0.63 | 0.28 | 87.6000 | 87.6000 | 5.0 | 1.00 | 0.21 | 0.09 | 91.674 | 91.674 | 5.0 | 1.047 | 1.047 | 4.44 | 4.44 | 1 | 0.002 | 1 |
| K6 | RQA5 | 23,5 | 70 | 69.52 | 300 | 169 | 50 | 5 | 0.00 | 0.00 | 81.0000 | 81.0000 | 5.0 | 1.00 | 0.16 | 0.07 | 84.509 | 84.509 | 5.0 | 1.043 | 1.043 | 4.15 | 4.15 | 1 | | |
| <p>korekcia na rozdielne vzdialenosti ZD pre etalón a meradlo:</p> <p>etalón $ZD_{0et}(mm)=1000$ $k_{ZD}=1.000$ použitý kalibračný koeficient meradla: $N_{sk}=1.000$ $U(N_{sk})\%=0.0$</p> <p>meradlo $ZD_{0m}(mm)=1000$ $U(k_{ZD})\%=0.1$ použitý kalibračný koeficient meradla: $N_{sk}=1.000$ $U(N_{sk})\%=0.0$</p> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Výsledok skúšky:</p> <p>vyhovuje</p> <p>Výsledok skúšky:</p> <p>vyhovuje</p> | | | | | | | | | | | | | | | | | | | | | | | | | | |

| číslo merania č.k. krok | skúšané meradlo | | | | | skúšané meradlo | | | | | etalón | | | | etalón | | | | Poznámka: nastavenie meradla | Pozn. | | | | | | | | | | | | | |
|---|-----------------|--------|------------------|------------------|------------------|---|------|-------|-------|-----------------|-----------------|----------------|-------------------|----------------|----------------|---|-------|------|------------------------------|---|-----------------|----------------|-------------------|-------------------|-------------------|----------------|------------------|------------------|------------------|----------------|------------------|------------------|----------------|
| | Q | filter | U _{RTG} | I _{RTG} | t _{EXP} | X _{EXP} | P | T | H | k _{TP} | K _{X0} | K _X | K _{X(p)} | K _X | v _X | P | T | H | | k _{TP} | K _{N0} | K _N | K _{N(p)} | K _{N(p)} | K _{N(p)} | v _X | U _{RTG} | U _{RTG} | U _{VNm} | v _X | U _{RTG} | U _{VNm} | v _X |
| | [mmAl] | [kV] | [mA] | [s] | [mAs] | [kPa] | [°C] | [%] | [°] | [mGy] | [mGy] | [mGy] | [mGy] | [mGy] | [%] | [kPa] | [°C] | [%] | | [°] | [mGy] | [mGy] | [mGy] | [mGy] | [mGy] | [%] | [kV] | [kV] | [kV] | [%] | [kV] | [kV] | [%] |
| A) nezostabeny zväzok: | | | | | | ZD overovaného meradla=0.600m, s 2,5mm celk. Al filtr. (pre konv.ra-diag.Rtg.) v súlade s refer. bod meradla je v strede (6.25 mm pod celným povrchom IK) | | | | | | | | | | Zdetalon.meradla=1.000m, s 2,5mm celk. Al filtr. (pre konv.ra-diag.Rtg.) v súlade s refer. bod meradla je v strede (6.25 mm pod celným povrchom IK) | | | | Zdetalon.meradla=1.000m, s 2,5mm celk. Al filtr. (pre konv.ra-diag.Rtg.) v súlade s refer. bod meradla je v strede (6.25 mm pod celným povrchom IK) | | | | | | | | | | | | | |
| 1 | K1 | RQR5 | 2,5 | 70 | 160 | 315 | 50 | 97,65 | 20,92 | 42,2 | 1,041 | 0 | 5,82 | 5,82 | 5,82 | 100,75 | 18,54 | 41,0 | 1,001 | 0,000 | 2,168 | 2,170 | 2,162 | 2,162 | 2,162 | 0,19 | 70 | 70,0 | 69,70 | 0,39 | 69,64 | 69,526 | 0,03 |
| 2 | K1 | RQR5 | 2,5 | 70 | 160 | 315 | 50 | 97,65 | 20,92 | 42,2 | 1,041 | 0 | 5,82 | 5,82 | 5,82 | 100,75 | 18,54 | 41,0 | 1,001 | 0,000 | 2,160 | 2,162 | 2,162 | 2,162 | 2,162 | | 70 | 69,5 | | | 69,55 | | |
| 3 | K1 | RQR5 | 2,5 | 70 | 160 | 315 | 50 | 97,65 | 20,92 | 42,2 | 1,041 | 0 | 5,82 | 5,82 | 5,82 | 100,75 | 18,54 | 41,0 | 1,001 | 0,000 | 2,158 | 2,160 | 2,160 | 2,160 | 2,160 | | 70 | 70,0 | | | 69,50 | | |
| 4 | K1 | RQR5 | 2,5 | 70 | 160 | 315 | 50 | 97,65 | 20,92 | 42,2 | 1,041 | 0 | 5,82 | 5,82 | 5,82 | 100,75 | 18,54 | 41,0 | 1,001 | 0,000 | 2,158 | 2,160 | 2,160 | 2,160 | 2,160 | | 70 | 69,5 | | | 69,53 | | |
| 5 | K1 | RQR5 | 2,5 | 70 | 160 | 315 | 50 | 97,65 | 20,92 | 42,2 | 1,041 | 0 | 5,82 | 5,82 | 5,82 | 100,75 | 18,54 | 41,0 | 1,001 | 0,000 | 2,160 | 2,162 | 2,162 | 2,162 | 2,162 | | 70 | 69,5 | | | 69,51 | | |
| 6 | K2 | RQR5 | 2,5 | 70 | 50 | 1002 | 50 | 97,63 | 20,97 | 41,8 | 1,041 | 0 | 5,97 | 5,97 | 5,97 | 100,74 | 18,54 | 41,0 | 1,001 | 0,000 | 2,204 | 2,206 | 2,206 | 2,206 | 2,206 | 0,05 | 70 | 70,5 | 70,50 | 0,00 | 69,50 | 69,522 | 0,03 |
| 7 | K2 | RQR5 | 2,5 | 70 | 50 | 1002 | 50 | 97,63 | 20,97 | 41,8 | 1,041 | 0 | 5,97 | 5,97 | 5,97 | 100,74 | 18,54 | 41,0 | 1,001 | 0,000 | 2,206 | 2,208 | 2,208 | 2,208 | 2,208 | | 70 | 70,5 | | | 69,51 | | |
| 8 | K2 | RQR5 | 2,5 | 70 | 50 | 1002 | 50 | 97,63 | 20,97 | 41,8 | 1,041 | 0 | 5,97 | 5,97 | 5,97 | 100,74 | 18,54 | 41,0 | 1,001 | 0,000 | 2,204 | 2,206 | 2,206 | 2,206 | 2,206 | | 70 | 70,5 | | | 69,53 | | |
| 9 | K2 | RQR5 | 2,5 | 70 | 50 | 1002 | 50 | 97,63 | 20,97 | 41,8 | 1,041 | 0 | 5,97 | 5,97 | 5,97 | 100,74 | 18,54 | 41,0 | 1,001 | 0,000 | 2,206 | 2,208 | 2,208 | 2,208 | 2,208 | | 70 | 70,5 | | | 69,53 | | |
| 10 | K2 | RQR5 | 2,5 | 70 | 50 | 1002 | 50 | 97,63 | 20,97 | 41,8 | 1,041 | 0 | 5,97 | 5,97 | 5,97 | 100,74 | 18,54 | 41,0 | 1,001 | 0,000 | 2,204 | 2,206 | 2,206 | 2,206 | 2,206 | | 70 | 70,5 | | | 69,52 | | |
| 11 | K3 | RQR5 | 2,5 | 70 | 300 | 169 | 50 | 97,60 | 21,03 | 41,3 | 1,042 | 0 | 5,74 | 5,74 | 5,74 | 100,74 | 18,53 | 41,0 | 1,001 | 0,000 | 2,114 | 2,116 | 2,116 | 2,116 | 2,116 | 0,26 | 70 | 69,0 | 69,20 | 0,40 | 69,55 | 69,530 | 0,02 |
| 12 | K3 | RQR5 | 2,5 | 70 | 300 | 169 | 50 | 97,60 | 21,03 | 41,3 | 1,042 | 0 | 5,73 | 5,73 | 5,73 | 100,74 | 18,53 | 41,0 | 1,001 | 0,000 | 2,114 | 2,116 | 2,116 | 2,116 | 2,116 | | 70 | 69,0 | | | 69,52 | | |
| 13 | K3 | RQR5 | 2,5 | 70 | 300 | 169 | 50 | 97,60 | 21,03 | 41,3 | 1,042 | 0 | 5,74 | 5,74 | 5,74 | 100,74 | 18,53 | 41,0 | 1,001 | 0,000 | 2,104 | 2,106 | 2,106 | 2,106 | 2,106 | | 70 | 69,5 | | | 69,53 | | |
| 14 | K3 | RQR5 | 2,5 | 70 | 300 | 169 | 50 | 97,60 | 21,03 | 41,3 | 1,042 | 0 | 5,74 | 5,74 | 5,74 | 100,74 | 18,53 | 41,0 | 1,001 | 0,000 | 2,114 | 2,116 | 2,116 | 2,116 | 2,116 | | 70 | 69,0 | | | 69,51 | | |
| 15 | K3 | RQR5 | 2,5 | 70 | 300 | 169 | 50 | 97,60 | 21,03 | 41,3 | 1,042 | 0 | 5,73 | 5,73 | 5,73 | 100,74 | 18,53 | 41,0 | 1,001 | 0,000 | 2,104 | 2,106 | 2,106 | 2,106 | 2,106 | | 70 | 69,5 | | | 69,54 | | |
| B) zostabeny zväzok (za Al filtrom): | | | | | | ZD overovaného meradla=1.000m, s 2,5mm celk. Al filtr. (pre konv.ra-diag.Rtg.) v súlade s refer. bod meradla je v strede (6.25 mm pod celným povrchom IK) | | | | | | | | | | Zdetalon.meradla=1.000m, s 2,5mm celk. Al filtr. (pre konv.ra-diag.Rtg.) v súlade s refer. bod meradla je v strede (6.25 mm pod celným povrchom IK) | | | | Zdetalon.meradla=1.000m, s 2,5mm celk. Al filtr. (pre konv.ra-diag.Rtg.) v súlade s refer. bod meradla je v strede (6.25 mm pod celným povrchom IK) | | | | | | | | | | | | | |
| 1 | K4 | ROA5 | 23,5 | 70 | 160 | 315 | 50 | 97,36 | 20,95 | 40,9 | 1,044 | 0 | 85 | 85,0 | 85,0 | 100,75 | 18,52 | 41,0 | 1,001 | 0,000 | 88,64 | 88,70 | 88,55 | 88,55 | 88,55 | 0,13 | 70 | 70,5 | 70,20 | 0,64 | 69,54 | 69,532 | 0,02 |
| 2 | K4 | ROA5 | 23,5 | 70 | 160 | 315 | 50 | 97,36 | 20,95 | 40,9 | 1,044 | 0 | 85 | 85,0 | 85,0 | 100,75 | 18,52 | 41,0 | 1,001 | 0,000 | 88,48 | 88,54 | 88,54 | 88,54 | 88,54 | | 70 | 69,5 | | | 69,51 | | |
| 3 | K4 | ROA5 | 23,5 | 70 | 160 | 315 | 50 | 97,36 | 20,95 | 40,9 | 1,044 | 0 | 85 | 85,0 | 85,0 | 100,75 | 18,52 | 41,0 | 1,001 | 0,000 | 88,52 | 88,58 | 88,58 | 88,58 | 88,58 | | 70 | 70,5 | | | 69,55 | | |
| 4 | K4 | ROA5 | 23,5 | 70 | 160 | 315 | 50 | 97,36 | 20,95 | 40,9 | 1,044 | 0 | 85 | 85,0 | 85,0 | 100,75 | 18,52 | 41,0 | 1,001 | 0,000 | 88,32 | 88,38 | 88,38 | 88,38 | 88,38 | | 70 | 70,0 | | | 69,54 | | |
| 5 | K4 | ROA5 | 23,5 | 70 | 160 | 315 | 50 | 97,36 | 20,95 | 40,9 | 1,044 | 0 | 85 | 85,0 | 85,0 | 100,75 | 18,52 | 41,0 | 1,001 | 0,000 | 88,52 | 88,58 | 88,58 | 88,58 | 88,58 | | 70 | 70,5 | | | 69,52 | | |
| 6 | K5 | ROA5 | 23,5 | 70 | 64 | 785 | 50 | 97,29 | 20,95 | 41,6 | 1,045 | 0 | 88 | 88,0 | 88,0 | 100,75 | 18,52 | 42,0 | 1,001 | 0,000 | 91,80 | 91,86 | 91,86 | 91,86 | 91,86 | 0,21 | 70 | 71,0 | 70,90 | 0,32 | 69,51 | 69,526 | 0,03 |
| 7 | K5 | ROA5 | 23,5 | 70 | 64 | 785 | 50 | 97,29 | 20,95 | 41,6 | 1,045 | 0 | 88 | 88,0 | 88,0 | 100,75 | 18,52 | 42,0 | 1,001 | 0,000 | 91,80 | 91,86 | 91,86 | 91,86 | 91,86 | | 70 | 71,0 | | | 69,52 | | |
| 8 | K5 | ROA5 | 23,5 | 70 | 64 | 785 | 50 | 97,29 | 20,95 | 41,6 | 1,045 | 0 | 88 | 88,0 | 88,0 | 100,75 | 18,52 | 42,0 | 1,001 | 0,000 | 91,52 | 91,58 | 91,58 | 91,58 | 91,58 | | 70 | 71,0 | | | 69,51 | | |
| 9 | K5 | ROA5 | 23,5 | 70 | 64 | 785 | 50 | 97,29 | 20,95 | 41,6 | 1,045 | 0 | 87 | 87,0 | 87,0 | 100,75 | 18,52 | 42,0 | 1,001 | 0,000 | 91,36 | 91,42 | 91,42 | 91,42 | 91,42 | | 70 | 71,0 | | | 69,55 | | |
| 10 | K5 | ROA5 | 23,5 | 70 | 64 | 785 | 50 | 97,29 | 20,95 | 41,6 | 1,045 | 0 | 87 | 87,0 | 87,0 | 100,75 | 18,52 | 42,0 | 1,001 | 0,000 | 91,60 | 91,66 | 91,66 | 91,66 | 91,66 | | 70 | 70,5 | | | 69,52 | | |
| 11 | K6 | ROA5 | 23,5 | 70 | 300 | 169 | 50 | 97,30 | 20,95 | 41,0 | 1,045 | 0 | 81 | 81,0 | 81,0 | 100,75 | 18,52 | 43,0 | 1,001 | 0,000 | 84,60 | 84,65 | 84,65 | 84,65 | 84,65 | 0,16 | 70 | 69,5 | 69,70 | 0,64 | 69,54 | 69,524 | 0,03 |
| 12 | K6 | ROA5 | 23,5 | 70 | 300 | 169 | 50 | 97,30 | 20,95 | 41,0 | 1,045 | 0 | 81 | 81,0 | 81,0 | 100,75 | 18,52 | 43,0 | 1,001 | 0,000 | 84,60 | 84,65 | 84,65 | 84,65 | 84,65 | | 70 | 69,0 | | | 69,51 | | |
| 13 | K6 | ROA5 | 23,5 | 70 | 300 | 169 | 50 | 97,30 | 20,95 | 41,0 | 1,045 | 0 | 81 | 81,0 | 81,0 | 100,75 | 18,52 | 43,0 | 1,001 | 0,000 | 84,36 | 84,41 | 84,41 | 84,41 | 84,41 | | 70 | 70,0 | | | 69,50 | | |
| 14 | K6 | ROA5 | 23,5 | 70 | 300 | 169 | 50 | 97,30 | 20,95 | 41,0 | 1,045 | 0 | 81 | 81,0 | 81,0 | 100,75 | 18,52 | 43,0 | 1,001 | 0,000 | 84,32 | 84,37 | 84,37 | 84,37 | 84,37 | | 70 | 70,0 | | | 69,55 | | |
| 15 | K6 | ROA5 | 23,5 | 70 | 300 | 169 | 50 | 97,30 | 20,95 | 41,0 | 1,045 | 0 | 81 | 81,0 | 81,0 | 100,75 | 18,52 | 43,0 | 1,001 | 0,000 | 84,40 | 84,45 | 84,45 | 84,45 | 84,45 | | 70 | 70,0 | | | 69,52 | | |

Pozn.: ZD=vzdialenosť od stredu IK po ohnisko rtg.zdroja