

# METRON QA-90

## protokol o testu elektrické bezpečnosti

Technik : Ing. Josef Vrána

Firma : S&amp;T Plus s.r.o., Novodvorská 994, 142 21 Praha 4

QA-90 no: 12395 ver : 04.05

Dne : 26.6.2006 Hod.: 14:16

Model : M1723A

Výrobní číslo : 3727A40320

Typ : CodeMaster

Inventurní číslo :

Výrobce: Hewlett-Packard/Agilent Technologies/Philips

Umístění/uzivatel : IPCHO

Adresa: Fakultní nemocnice Olomouc, I.P.Pavlova 6, 775 20 Olomouc

Klasifikace přístroje : CL1

Mezní hodnoty podle: IEC 60601.2.4

## TEST RESULTS

### – MODULE INFORMATION –

| Module Code | Module Type | No of leads |
|-------------|-------------|-------------|
| 3 LEADS ECG | CF          | 3           |
| 2 PADDLES   | CF          | 2           |

### – SETUP DATA –

|                                 |        |                                |      |
|---------------------------------|--------|--------------------------------|------|
| Power Up Delay Time             | : 1    | Stop after new power config    | : No |
| Stop at new module              | : No   | Stop before new power config   | : No |
| Multiple Protective Earth Tests | : No   | Multiple Enclosure Tests       | : No |
| Protective Earth test current   | : 25 A | External Isolating Transformer | : No |

| Test                               | Limit   | Result  | Warning |
|------------------------------------|---------|---------|---------|
| <b>Supply Voltage</b>              |         |         |         |
| N-G                                |         | 0,4 V   |         |
| L-G                                |         | 229,6 V |         |
| L-N                                |         | 229,1 V |         |
| <b>Current Consumption</b>         |         | 338 mA  |         |
| <b>Protective Earth</b>            | 200 mΩ  | 108 mΩ  |         |
| <b>Insulating Resistance</b>       |         |         |         |
| Applied Part-Case                  |         | 195 MΩ  |         |
| Applied Part-Case                  |         | 199 MΩ  |         |
| Mains-Case                         |         | >200 MΩ |         |
| <b>Earth Leakage Current</b>       |         |         |         |
| OS                                 | 1000 μA | 250 μA  |         |
| NC                                 | 500 μA  | 129 μA  |         |
| OS-RM                              | 1000 μA | 248 μA  |         |
| NC-RM                              | 500 μA  | 128 μA  |         |
| <b>Enclosure Leakage Current</b>   |         |         |         |
| OS                                 | 500 μA  | 0 μA    |         |
| NC                                 | 100 μA  | 0 μA    |         |
| OE                                 | 500 μA  | 128 μA  |         |
| OS-RM                              | 500 μA  | 0 μA    |         |
| NC-RM                              | 100 μA  | 0 μA    |         |
| OE-RM                              | 500 μA  | 128 μA  |         |
| <b>Patient Leakage Current AC</b>  |         |         |         |
| OS, Module : 2 PADDLES, Lead : 4   | 50 μA   | 2 μA    |         |
| OS, Module : 3 LEADS ECG, Lead : 3 | 50 μA   | 0 μA    |         |
| NC, Module : 2 PADDLES, Lead : 4   | 10 μA   | 2 μA    |         |
| NC, Module : 3 LEADS ECG, Lead : 3 | 10 μA   | 0 μA    |         |

**Patient Leakage Current AC (continued)**

|                                       |            |            |
|---------------------------------------|------------|------------|
| OE, Module : 2 PADDLES, Lead : 5      | 50 $\mu$ A | 15 $\mu$ A |
| OE, Module : 3 LEADS ECG, Lead : 2    | 50 $\mu$ A | 4 $\mu$ A  |
| OS-RM, Module : 2 PADDLES, Lead : 4   | 50 $\mu$ A | 2 $\mu$ A  |
| OS-RM, Module : 3 LEADS ECG, Lead : 3 | 50 $\mu$ A | 0 $\mu$ A  |
| NC-RM, Module : 2 PADDLES, Lead : 4   | 10 $\mu$ A | 2 $\mu$ A  |
| NC-RM, Module : 3 LEADS ECG, Lead : 3 | 10 $\mu$ A | 0 $\mu$ A  |
| OE-RM, Module : 2 PADDLES, Lead : 5   | 50 $\mu$ A | 16 $\mu$ A |
| OE-RM, Module : 3 LEADS ECG, Lead : 2 | 50 $\mu$ A | 4 $\mu$ A  |

**Mains on Applied Parts**

|                                          |             |            |
|------------------------------------------|-------------|------------|
| SFC, Module : 2 PADDLES, Lead : ALL      | 100 $\mu$ A | 85 $\mu$ A |
| SFC, Module : 3 LEADS ECG, Lead : ALL    | 100 $\mu$ A | 8 $\mu$ A  |
| SFC-RM, Module : 2 PADDLES, Lead : ALL   | 100 $\mu$ A | 85 $\mu$ A |
| SFC-RM, Module : 3 LEADS ECG, Lead : ALL | 100 $\mu$ A | 8 $\mu$ A  |

**Patient Auxiliary Current AC**

|                                       |            |           |
|---------------------------------------|------------|-----------|
| OS, Module : 2 PADDLES, Lead : 5      | 50 $\mu$ A | 2 $\mu$ A |
| OS, Module : 3 LEADS ECG, Lead : 3    | 50 $\mu$ A | 0 $\mu$ A |
| NC, Module : 2 PADDLES, Lead : 5      | 10 $\mu$ A | 2 $\mu$ A |
| NC, Module : 3 LEADS ECG, Lead : 3    | 10 $\mu$ A | 0 $\mu$ A |
| OE, Module : 2 PADDLES, Lead : 4      | 50 $\mu$ A | 8 $\mu$ A |
| OE, Module : 3 LEADS ECG, Lead : 1    | 50 $\mu$ A | 3 $\mu$ A |
| OS-RM, Module : 2 PADDLES, Lead : 5   | 50 $\mu$ A | 2 $\mu$ A |
| OS-RM, Module : 3 LEADS ECG, Lead : 3 | 50 $\mu$ A | 0 $\mu$ A |
| NC-RM, Module : 2 PADDLES, Lead : 5   | 10 $\mu$ A | 2 $\mu$ A |
| NC-RM, Module : 3 LEADS ECG, Lead : 3 | 10 $\mu$ A | 0 $\mu$ A |
| OE-RM, Module : 2 PADDLES, Lead : 4   | 50 $\mu$ A | 8 $\mu$ A |
| OE-RM, Module : 3 LEADS ECG, Lead : 1 | 50 $\mu$ A | 3 $\mu$ A |

**Patient Auxiliary Current DC**

|                                       |            |           |
|---------------------------------------|------------|-----------|
| OS, Module : 2 PADDLES, Lead : 5      | 50 $\mu$ A | 0 $\mu$ A |
| OS, Module : 3 LEADS ECG, Lead : 3    | 50 $\mu$ A | 0 $\mu$ A |
| NC, Module : 2 PADDLES, Lead : 5      | 10 $\mu$ A | 0 $\mu$ A |
| NC, Module : 3 LEADS ECG, Lead : 3    | 10 $\mu$ A | 0 $\mu$ A |
| OE, Module : 2 PADDLES, Lead : 5      | 50 $\mu$ A | 0 $\mu$ A |
| OE, Module : 3 LEADS ECG, Lead : 3    | 50 $\mu$ A | 0 $\mu$ A |
| OS-RM, Module : 2 PADDLES, Lead : 5   | 50 $\mu$ A | 0 $\mu$ A |
| OS-RM, Module : 3 LEADS ECG, Lead : 3 | 50 $\mu$ A | 0 $\mu$ A |
| NC-RM, Module : 2 PADDLES, Lead : 5   | 10 $\mu$ A | 0 $\mu$ A |
| NC-RM, Module : 3 LEADS ECG, Lead : 3 | 10 $\mu$ A | 0 $\mu$ A |
| OE-RM, Module : 2 PADDLES, Lead : 5   | 50 $\mu$ A | 0 $\mu$ A |
| OE-RM, Module : 3 LEADS ECG, Lead : 3 | 50 $\mu$ A | 0 $\mu$ A |

**Patient Leakage Current DC**

|                                       |            |           |
|---------------------------------------|------------|-----------|
| OS, Module : 2 PADDLES, Lead : 5      | 50 $\mu$ A | 0 $\mu$ A |
| OS, Module : 3 LEADS ECG, Lead : 3    | 50 $\mu$ A | 0 $\mu$ A |
| NC, Module : 2 PADDLES, Lead : 5      | 10 $\mu$ A | 0 $\mu$ A |
| NC, Module : 3 LEADS ECG, Lead : 3    | 10 $\mu$ A | 0 $\mu$ A |
| OE, Module : 2 PADDLES, Lead : 5      | 50 $\mu$ A | 0 $\mu$ A |
| OE, Module : 3 LEADS ECG, Lead : 3    | 50 $\mu$ A | 0 $\mu$ A |
| OS-RM, Module : 2 PADDLES, Lead : 5   | 50 $\mu$ A | 0 $\mu$ A |
| OS-RM, Module : 3 LEADS ECG, Lead : 3 | 50 $\mu$ A | 0 $\mu$ A |
| NC-RM, Module : 2 PADDLES, Lead : 5   | 10 $\mu$ A | 0 $\mu$ A |
| NC-RM, Module : 3 LEADS ECG, Lead : 3 | 10 $\mu$ A | 0 $\mu$ A |
| OE-RM, Module : 2 PADDLES, Lead : 5   | 50 $\mu$ A | 0 $\mu$ A |
| OE-RM, Module : 3 LEADS ECG, Lead : 3 | 50 $\mu$ A | 0 $\mu$ A |

\*\*\*\*\* UNIT PASSED TEST! \*\*\*\*\*

**Poznámka :**

Baterie 09/2004